THE CHEMIST AND DRUGGIST

To Correspondents.—Communications for the Editor should be addressed "To the Editor of the Chemist and Druggist," Colonial Buildings, 42a, Cannon Street, and if intended for insertion, should be Written *on one side of the paper only*, and authenticated by the real name and address of the writers, not necessarily for publication, but as a guarantee of good faith.

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All Advertisements intended for insertion in the current Month must be sent to **THE PUBLISHER** on or before the 12th, except Employers' and Assistants' Advertisements, which can be received up to 10 a.m. on the morning previous to publication.

Subscribers are requested to observe that, for the future, the receipt of The Chemist and Druggist in a *Green Wrapper* indicates that with that number the term of subscription has expired, and that no further numbers will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order without an exact system like this.

Our Country and Colonial Subscribers are requested to furnish the Editor with any trade gossip that they may consider interesting.

Editorial Notes.

With a view to prevent injury to health by the improper adulteration of bread it is provided by an Act passed in 1836, that bakers shall not use any mixture or ingredient in the making of bread for sale, other than flour or meal of wheat, barley, rye, oats, buck-wheat, Indian-corn, peas, beans, rice, or potatoes, with any common salt, pure water, eggs, milk, barm, leaven, potato or other yeast, on any pretence, under a penalty for every offence not exceeding ten pounds, nor less than five pounds, or in default, imprisonment not exceeding six months. Nobody seems to think this penalty excessive; indeed, if we accept as truth the statements made by some medical men respecting the evil effects of alumed bread, we must admit that the baker who adds alum to his flour deserves the fate of that unhappy member of his craft who offended Pharaoh. The allegation that alum is extensively used by bakers, as an adulterating substance, appears to be well founded, but we cannot help thinking that this so-called adulteration is sometimes excusable. Eleven years ago Professor Odling proved that alum had the effect of rendering available for bread-making many qualities of flour which must otherwise be wasted, and the results of his analytical investigations are inconsistent with the hackneyed statement that alumed bread retains a much larger proportion of water than bread made without alum. There can be no doubt that flour made from wheat that has been too much exposed to damp during harvest will yield sticky soddeneed bread, unless the injurious action of the diastase on the starch is prevented by the addition of alum or lime-water. As to the probable effects of the habitual use of alumed bread on the digestive functions, doctors differ, some asserting that the minute doses of alum taken with the daily bread can do no harm, while others declare that alumed bread is the source of very many of the ills that flesh is heir to. Mr. Henry Watts in his *Dictionary of Chemistry* refers to this divergence of opinion, and suggests that the truth probably lies in the middle. "Many of the statements" he says, "which have been put forth on this, as on other questions relating to the adulteration of food, are doubtless grossly exaggerated; nevertheless, it would be unsafe to assert that the use of alum is quite free from objection." However, the use of alum in bread-making is illegal, whether it be justifiable or not on scientific grounds, and those who are appointed to administer the law cannot be blamed for pouncing on the offending bakers. How is it then that prosecutions under the Bread Act have been so rare, while the practice of alum-adulteration has been so common? The estimation of alum in bread is really an extremely troublesome operation; and before the passing of the Adulteration of Food Act in 1860 few people cared to uphold the purity of articles of food at the risk of pecuniary loss. The following passage from the late Dr. Normandy's excellent article on bread, in *Ure's Dictionary of Arts, Manufactures, and Mines*, confirms our own explanation:

> "The quantity of alum used varies exceedingly; but no appreciable effect is produced when the proportion of alum introduced is less than 1 in 900 or 1000, which is at the rate of 27 or 28 grains in a quartern loaf. The use of alum has however become so universal, and the Act of Parliament which regulates the matter has so long been considered as a dead letter, from the trouble, and chance of pecuniary loss which it entails on the prosecutor should his accusation prove unsuccessful, that but few, and until quite lately none, of the public officers would undertake the discharge of a duty most disagreeable in itself and at the same time full of risk."

Happily, the risk attending the prosecution of a baker can now be disregarded, and as magistrates are not expected to know much about practical chemistry, a county analyst need not bother himself with tiresome details of analysis. An information may be laid against a baker on the *supposition* that he has put alum in his bread, and if some simple but untrustworthy qualitative test appears to give support to the supposition, so much the worse for the baker. This is the impression which we get from the report of the extraordinary proceedings at Cheltenham, reprinted in another column from the *Cheltenham Examiner* of the 27th ult. Mr. Horsley's raid on the bakers deserves to be chronicled as a master-stroke of irritative local administration. Eighty-five samples of bread were collected by the police for analysis in a single day and in one petty sessional district, the grand result being that informations were laid against five bakers, two of whom seem to have been only suspected. In the first case Mr. Horsley *could* tell the *probable* proportion of alum to the sack, but *would not* because it was so very small. In the next case no evidence was offered, but Mr. Horsley was understood to say that at the time the summons was issued he had no opportunity of testing the bread. In the third case the analyst deposed to the presence of alum in *a more appreciable quantity* than in the previous cases. The last case tried differed from the others, inasmuch as the defendant's wife admitted the use of "hards," a mixture of salt and alum. The two tradesmen who were supposed to have used alum, and the third who evidently used it without knowing that he was doing wrong, were fined £5 each. The report given in the *Cheltenham Examiner* throws no light upon Mr. Horsley's method of analysis, but some correspondence printed in the same journal leads us to conclude that his evidence against the defendants was based on the untrustworthy "logwood test." Dr. Normandy and Dr. Odling have showed that the separation and identification of pure alumina are the only satisfactory proofs of the adulteration of bread with alum, and that the operations involved in the analysis are necessarily very tedious and delicate. If Messrs. CHAMBERS and BRIDGMAN were convicted on the strength of the "logwood test," it is quite evident that a Public Analyst may be a Public Nuisance.

THE injustice of the Pharmacy Act seems to be an inexhaustible subject for correspondents. We have received a letter signed "Chemicus," reminding us that chemists and druggists in business on their own account may be registered as *Pharmaceutical Chemists* on passing the "separate examination," which is admitted to be more practical than theoretical, provided they have held an independent position for at least five years, or are not less than thirty years of age. "Chemicus" pleads for those chemists and druggists who were in business at the time of the passing of the Act, but who are still under thirty years of age, and claims for them the privilege of registration as *Pharmaceutical Chemists* on passing the same practical examination. We never regarded the "separate examination" with favour, and should strongly oppose any attempt to extend its action. Its adoption as part of the educational scheme of the Pharmaceutical Society was justified by the fact that there were many "outsiders" who might have been registered as *Pharmaceutical Chemists* in 1852, and who had since regretted their indifference or neglect. The Act of 1868 has obliterated the hard line between the "ins" and the "outs," and we are surprised that the back-door of "separate examination" is still kept open. As far as regards trading rights, there is absolute equality between those who are registered as *Chemists and Druggists*, and those who are registered as *Pharmaceutical Chemists*. We trust, therefore, that the significance of the higher title as an honourable distinction gained by systematic study will be jealously preserved.

ASSISTANTS to chemists and druggists who are desirous of taking advantage of the modified examination, and have not yet established their claims thereto, should particularly note the official intimation which will be found in our advertisement pages. They must make application before the 31st of December, 1869. It will be remembered that the Pharmacy Amendment Act of this year extended the time at first allowed for such application to the end of this year, to meet the case of those assistants whose grievance was that they had not been engaged in the business for the three years immediately preceding the 31st of July, 1868. Any three years' assistantship previous to that date is, by the Amended Act, accepted, provided the applicant had *then* reached the age of twenty-one. We are informed that as yet the new applications have been but few; but if any miss the opportunity now, they will only have themselves to blame. At the worst, they will only need to work a little harder and pass the minor examination. The Amended Pharmacy Act was published in our September number. Candidates for the preliminary examination also should remember that the 7th of December next will be the only day for some time on which they can be attended to, and it is necessary that they should make application to the Registrar at least ten days previously.

LONDON improvements have occupied a considerable space in all the daily papers lately, and there is one which confers a benefit on some of us. Members of the Pharmaceutical Society visiting their Institution in Bloomsbury Square, will be pleased to find that they can enter now without the formality, hitherto indispensable, of knocking and ringing. The open doors have a decidedly cheerful, if ominous, appearance.

THE strong arm of the law has come down with a thwack upon Mr. FARMER, of Putney, and at his request we caution our readers against exposing themselves to a similar blow. We have no doubt that there are hundreds of chemists and druggists who keep small quantities of methylated spirit in stock for occasional use, and who never consider the result of selling a little without a licence. It appears that Mr. FARMER recently supplied four ounces of this liquid to a chance customer, and was horrified at receiving, three weeks after the transaction, an official document informing him that he had incurred a penalty of £50. The police magistrate to whom he was referred reduced the fine to £12 10s., and the Board of Revenue, on being memorialised, eventually reduced this fine to £1. Mr. FARMER, unhappily, was not satisfied with this mitigation of the penalty, and hoping to obtain a total remission of the fine, he demurred to pay the sovereign. His hopes, however, were rudely shattered by the appearance of two humble representatives of the law with a repulsive-looking document enforcing the immediate payment of £12 10s. and costs. He paid the money most reluctantly, and on subsequently appealing to the Board he was informed that "they could only abide by the legal process of a levy warrant."

WE learn from Messrs. MACMILLAN's new scientific weekly journal, *Nature*, that M. LOUIS LACAZE has bequeathed to the French Academy of Sciences the funds necessary for the foundation of three prizes of 10,000 francs each, to be awarded every second year. The sciences for which these prizes are to be given are Physiology, Physics, and Chemistry.

MR. W. P. H. COVERT, of the Continental Hotel, Philadelphia, U.S., is our agent in that city, and will receive subscriptions and advertisements on our account.

WE are making arrangements for the introduction of an entirely new feature in the CHEMIST AND DRUGGIST for next year, by which we hope to give the journal an artistic character, and render it personally interesting to a large number of our subscribers.

THE editor of the CHEMISTS' AND DRUGGISTS' ALMANACK AND PHARMACEUTICAL TEXT BOOK for 1870 desires us to report progress, and to inform the subscribers to that work that the first edition will, in all probability, be ready by the 10th of December. All advertisements must be sent to the publisher before the 1st of December. A prospectus of the book accompanies this number of the journal, and from a perusal of some of the proof sheets we can promise our readers a valuable acquisition to their library. We are requested to add, that for the sake of those whose wishes are always received with respect, a few copies will be bound and finished in a superior manner, and any subscriber preferring one of these will kindly mention it when ordering, and enclose sixpence extra. A similar process will be sufficient for those who have already ordered the work. The book will be sent post free for 1s. 2d., or (extra bound) for 1s. 8d.

Pharmaceutical Society of Great Britain.

EVENING MEETING, WEDNESDAY, NOV. 3, 1869.

MR. H. SUGDEN EVANS, PRESIDENT, IN THE CHAIR.

THE minutes of the preceding meeting having been read and confirmed, subsequent donations to the library and museum were acknowledged, and the thanks of the meeting tendered to the donors thereof. Mr. DANIEL HANBURY, F.R.S., then proceeded to read some

HISTORICAL NOTES ON MANNA.

Alluding to the doubtful nature of the substance provided for the sustenance of the ancient Israelites, and termed by them manna, and the origin of the substances known in subsequent ages under that name, the author mentions the fact that modern manna is derived from a species of art cultivated in Calabria and Sicily. His inquiries had, however, elicited the curious fact that in the early history of Sicily no mention is made of manna as a production of the island, and it was this and other results of his researches which formed the body of his interesting communication to the Pharmaceutical Society. With regard to the manna described in the Book of Exodus as falling from heaven, the author considers that, accepting the Mosaic account as the narrative of a real event, it may be safely affirmed that no phenomena is known which is at all adequate to explain it, although the notion of the ancients, that manna is of the nature of dew, and falls from the sky, still lingers in the East.

The author was, however, specially anxious to ascertain the period at which ash-manna was first collected, to elucidate which point he had investigated the works of many authors of early times. Another point of interest was the custom of making incisions in the trees to promote the exudation of the manna, which had given rise to much controversy about the middle of the sixteenth century. We cannot, in conclusion, do better than recapitulate the points in the history of manna upon which Mr. Hanbury's valuable efforts have succeeded in throwing light.

1. That the manna known in Europe in very early times was probably of Oriental origin.

2. That manna of the art began to be collected in Calabria in the first half of the fifteenth century.

3. That the practice of making incisions in the trees in order to promote the exudation was not commenced until about the middle of the sixteenth century, previous to which period the only manna obtained was that which exuded spontaneously.

4. That although the existence in Sicily of a mountain called by the Arabian name, *Gibilmanna*, would seem to indicate that manna was collected during the period of Mussulman rule in that island, evidence has not been produced to prove the fact, but that, on the contrary, it appears that manna was gathered in Calabria long anterior to its collection in Sicily.

Professor BENTLEY agreed with Mr. Hanbury in dismissing the question of the origin of Israelitish manna.

Mr. HASELDEN alluded to the various applications of manna a few years back. He considered its only present use was to make blue pills, for which purpose it served admirably.

The CHAIRMAN asked if Mr. Hanbury had ever met with any artificial manna. He had himself met with a sample from France.

Mr. HANBURY had heard of, but had never seen, artificial manna. Conceived it would be difficult to imitate its natural appearance.

Mr. MORSON had known artificial manna to be made, or rather he had known common cheap manna to be purified, and so moulded as to exactly resemble the best natural article.

Some notes were then read on

PULVIS CRETÆ AROMATICUS AND LAC AMYGDALÆ AMARÆ, BY A. F. HASELDEN, VICE-PRESIDENT.

The object of the author in referring to the first of these subjects was to show that the present substitute for the old aromatic confection, when made, as ordered in the Pharmacopœia, with the saffron and spices in powder, is more grateful and aromatic than when made, as it has been suggested it might be made, with infusion of saffron and the essential oils of clove and nutmeg. The latter mode of preparing it was proposed as a means of producing the sort of bright yellow powder which wholesale druggists supplied for *Pulvis Cretæ Aromaticus;* but the author considered it preferable to use the powder as ordered in the Pharmacopœia, although the colour of this powder may not be so bright as the other. He stated that the bright yellow powder, although it gives out its colour more quickly, does not give more colour than the other, nor indeed quite so much, when the latter is carefully rubbed with water.

In referring to the second subject, the author desired to show that *Lac Amygdalæ Amaræ*, which was generally made with blanched bitter almonds, might be equally well made from the almonds unblanched, if they were first washed with a little cold water.

Dr. REDWOOD read a communication on

SYRUP OF IODIDE OF IRON, BY MR. BEARDSWORTH.

The author had used citric acid in the proportion of one grain to the ounce as an adjunct to the usual means of keeping the preparation clear and colourless. To decolorise any sample he recommended the citric acid to be added, and the bottle papered half way round and exposed to a bright light.

Mr. CARTEIGHE could not see that the citric acid had any hand in preserving the syrup. Considered that success was due to working carefully with pure materials.

Dr. REDWOOD said that his experience tended to show that deterioration of the syrup was due either to the use of inferior sugar, or to its use in too small quantity, or to the syrup being kept in an impure atmosphere without due precaution. The fact of the alteration commencing from the surface shows that the air originates it; but in Dr. Redwood's opinion this would not be the case with pure air, but is due to the impurities of so varied a kind which are continually being emanated during the operations of a laboratory. Otherwise, Dr. Redwood believed that the cause originates in the sugar. The impurities to be excluded from the substance were such as lime, albumen, etc.

The CHAIRMAN announced that the next meeting would take place on the first Wednesday in December.

MEETING OF THE COUNCIL, OCTOBER 6TH, 1869.*

MR. H. SUGDEN EVANS, PRESIDENT, IN THE CHAIR.

Present :—Messrs. Abraham, Bottle, Bourdas, Brady, Carteighe, Deane, Dymond, Edwards, Haselden, Hills, Ince, Morson, Orridge, Sandford, Savage, Squire, Stoddart, and Williams.

It was moved by Mr. SANDFORD, seconded by Mr. DEANE, and

> Resolved—That the thanks of the Council be given to the President and Professor Redwood for their attendance at the International Pharmaceutical Congress at Vienna, and that their report be entered on the minutes.

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* Abridged from the Official Report.

The Report presented by these gentlemen having been read,

It was moved by Mr. Sandford, seconded by Mr. Orridge, and

Resolved—That the thanks of the Pharmaceutical Society of Great Britain be given to the Pharmaceutical Society of Austria for the hospitable entertainment given to the English delegates at the late International Congress, accompanied by an expression of hope that on some future early occasion the Congress may be held in London.

The President reported that he had received the following memorandum from the Director of the Laboratory:—

"The Laboratory entries during the first few days of the session have usually been from 10 to 18; last year they rose to 24; this year they are 38."

Mr. James Collins was appointed Curator of the Museum for the ensuing year.

In accordance with notice, it was moved by Mr. Dymond, seconded by Mr. Stoddart,—That as the universally expressed feeling of the Anniversary Meeting was in favour of the publicity of the Proceedings of the Council of the Society, it is expedient that its proceedings be fully reported in the *Pharmaceutical Journal*, and that reporters desiring to represent other journals be permitted, at the discretion of the Council, to be present, but that any portion of the proceedings which the Council shall declare to be unsuited for publication, shall not be reported.

Amendment—Moved by Mr. Orridge, seconded by Mr. Squire,—That it is not desirable to make any alteration in the existing system of reporting before the next annual meeting.

For the amendment—Messrs. Abraham, Bottle, Bourdas, Deane, Edwards, Haselden, Hills, Ince, Morson, Orridge, Sandford, and Squire. Against—Messrs. Brady, Carteighe, Dymond, Savage, Stoddart, and Williams.

The original motion was therefore lost.

Several other amendments having been moved and rejected, Mr. Orridge's amendment was put as a substantive motion and carried.

In reference to the notice given, that steps be taken to assimilate the laws which regulate the practice of pharmacy in Ireland and Great Britain respectively,—

It was moved by Mr. Abraham, seconded by Mr. Bottle, and

Resolved—That the question of legislation relative to Pharmacy in Ireland and the Colonies be referred to a select committee for detailed consideration. The committee to report to this Council as early as they may be prepared to do so.

The committee to consist of the President and Vice-President, Messrs. Abraham, Sandford, Hills, Edwards, Morson, and Squire.

It was moved by Mr. Orridge, seconded by Mr. Carteighe,—That in the opinion of this Council it is due to the constituent body that after the completion of the present volume of the *Pharmaceutical Journal*, the ensuing issue should be made fortnightly.

On this question being discussed, the mover and seconder consented to its being withdrawn. Whereupon

It was moved by Mr. Brady, seconded by Mr. Savage, and

Resolved—That a committee be appointed to consider the desirability of publishing the *Pharmaceutical Journal* weekly, instead of monthly as heretofore.

It was moved by Mr. Edwards, seconded by Mr. Orridge, and

Resolved—That the following members of the Council be appointed a committee to consider the best means of carrying out the foregoing resolution in relation to the journal:—The President and Vice-President, Messrs. Orridge, Carteighe, Brady, Mackay, and Sandford.

Mr. Paul Spencer, chemist, and Mr. John Tunley, chemist, of West Bromwich, have made application to the West Bromwich Improvement Commissioners, to store petroleum, the former two barrels, and the latter fifteen gallons.

Abstracts of Foreign Papers.

REMARKS ON MILK AND ITS COMPOSITION.

In the *Journal de Pharmacie et de Chimie* we find a continuation of some remarks on milk, by M. A. Commaille. In a previous number, he had given a note on the milk of Algiers, showing that this milk was of a superior quality to that of Alsace and Normandy, especially in reference to nitrogenous matter. Another result he drew was, that the mineral matter in nearly all milks was nearly identical. In the present note, the author states his expectation that the milk of Marseilles, being produced under a Mediterranean climate, should present a similitude with that of Algiers, but in this he has been disappointed, especially by a considerable poverty in solid principles, a consequence either of peculiar feeding or close confinement. A difference in the quality of the milk is also shown by treating Algerian milk with four volumes of pure bisulphide of carbon and evaporating the solvent. The trace of matter left has an odour generally agreeable; whilst Marseilles milk treated in the same manner yields an inodorous or nauseous residue. The author also gives analyses, showing the composition of the milk of animals under different conditions, and subsequently compares the milk of different animals, concluding with the quotation of analyses which do not support the general supposition that the milk of woman is very similar in composition to that of the ass. He also arrives at the conclusion that woman's milk is the most liable to variation of all.

To resume, he admits that milk is of an essentially variable composition, and that it is not reasonable to assume that any sample of milk is adulterated because it departs from a given type. Such a comparison would only be fairly applicable to milks obtained from animals of the same race, under identical conditions of country and food. It is impossible to say what should be the composition of normal milk.

VEGETABLE EXTRACTS.

In *Cosmos*, we find an application of the process long made use of in the pharmaceutical laboratory in the preparation of vegetable extracts, viz., that of expressing the vegetables by strong hydraulic pressure, and subsequently concentrating the juice thus obtained by evaporation *in vacuo*. M. Berjot has applied the process to the preparation of extracts of the various vegetables used in cookery, such extracts being useful for making soups, etc. One litre of ordinary stock may be converted into good soup by the use of one gramme of these extracts.

ZINC WATER-RESERVOIRS.

In the *Polytechnisches Journal von Dingler*, M. Ziurek draws attention to the danger of allowing water intended for domestic or industrial purposes to come in contact with zinc. The employment of this metal for reservoirs, roofs, etc., is becoming very universal; the author points out that water kept in such reservoirs or collected from such roofs is invariably found to contain more or less zinc in solution, and states that its use will inflict considerable injury on health. To avoid the danger thus threatened, the author recommends that the zinc employed for such purposes be painted with asphalte varnish or any iron pigment.

ARSENIC IN COMMERCIAL SODA.

Dr. Fresenius has accidentally discovered that so-called pure neutral crystallised carbonate of soda, as delivered from the alkali works, may, by the application of ordinary chemical tests, be often found to contain a quantity of arsenic, as arsenate, or arsenite of soda, which, though small, is sufficient to affect the purity of preparations for medicinal or chemical use. Dr. Fresenius unhesitatingly attributes the contamination of the soda with arsenic to the use of sulphuric acid, derived from pyrites containing arsenic, in the conversion of chloride of sodium into sulphate of soda.

Veterinary Notes.

PLEURISY.

In point of frequency and severity, pleurisy is the most important disease of the respiratory organs of the horse. Though severe, I dare say, no case ought to be fatal if properly and promptly treated. Pleurisy may result from a wound of the chest, but most commonly is seen as a sequel to exposure. Horses driven till warm, and then allowed to stand on a cold day, such as doctors' horses, are most in risk. Warm, badly-ventilated stables, excessive use of warm food and heavy clothing, predispose a horse to an attack.

To give a clear idea of what pleurisy really is, I must for a moment draw attention to the anatomy of the chest.

Most persons have seen an animal opened and the lungs removed; they may have noticed that those organs do not nearly fill the chest. In the living animal, however, they fill it completely, their surfaces being closely applied to its walls; the act of opening the chest, by admitting air, allows of their collapse. On looking at a lung we see on its surface a thin membrane: this is called the pleura; a continuation of it also lines the inside of the chest. We can now understand how, at each inspiration, the two layers of pleura are pressed together. In health a small quantity of fluid is always found between the layers; its use is to reduce friction to a minimum. Pleurisy, then, is inflammation of this thin lining membrane. It is usually ushered in by a shivering fit and general febrile symptoms. The pulse and breathing are both accelerated, the latter visibly altered in character, inspiration being quicker and shorter than expiration; there is generally a short, painful cough, pain on pressure between the ribs, and great disinclination to move the fore limbs. There is no heaving of the flanks as in pneumonia; on the contrary, the abdominal muscles are contracted to fix the chest, giving the flank a peculiar tucked up appearance. Inflammation of a secreting structure in the first stage arrests secretion. In inflammation of the pleura, then, we have two highly sensitive layers abnormally dry pressed together at each inspiration. This will explain why the inspiration is short and quick, and why a cough should be abruptly stopped, giving it such a characteristic catching sound. We can understand, too, why pain is so great from pressure on the sides, and why the animal shows such disinclination to move the fore legs.

In the second stage of inflammation of a secreting structure, we have excessive and abnormal secretion. In pleurisy, after the dry stage, we have an excessive quantity of fluid discharged; thus we get "water in the chest" or hydrothorax. We said before that the lungs fill the entire cavity of the chest, consequently any additional quantity of fluid in the chest must diminish their capacity. Shortly, then, we may say that in pleurisy there is general functional disturbance, a painful state of the chest, and a collection of more or less fluid in the pleural cavity, which has a tendency to form false membranes or to increase, so as fatally to compress the lungs. The indications in the treatment of pleurisy are to modify the inflammation and allay pain in the first stages, then to support the system and promote absorption of fluid in the chest. Most of our veterinary works recommend bleeding in pleurisy. The idea is founded upon erroneous pathology, for bleeding cannot check inflammation, but certainly favours exudation of fluid. Calomel, antimony, and such like so-called antiphlogistics are worse than nothing; local stimulants, as blisters to the chest, are mere aggravations. We can only combat inflammations by putting the animal and his various functions in the best possible attitude for negative resistance. A case of pleurisy should be put into an airy, loose box, the body well clothed, and a diffusible stimulant given with a view to regulating the circulation. To open the bowels, aloes must not be used, as super-purgation is easily induced. Six ounces of linseed oil, and one of nitric ether, or four or five ounces of Magnese Sulph. is preferable. To allay pain, I have found nothing equal to hot rugs. Dip the rug into boiling water, ring it out, and quickly apply it to the chest; keep it in position by another rug and a roller; and as soon as cool replace by another. As soon as the acute symptoms have passed off, the following ball may be given twice a day:—

Carb. Ammon., ʒj.
Zingib. Pulv., ʒij.
Resinæ Pulv., ʒj.
Linseed Meal and Treacle, q. s.

It has a remarkably beneficial action on the bowels. Should the pulse remain at 50 or 55 per minute, and the breathing be laboured, considerable effusion in the chest is probably the cause; auscultation will prove the surmise. Then we require diuretics and stimulants. A mixture of equal parts of Sp. Eth. Nit. and Liq. Ammon. Acet., given three or four times a day, is very active; dose, half an ounce. Blisters to the sides seem to promote absorption. As a last resort, though not too late, tapping may be tried. This is a simple operation; a small canula and trochar is thrust into the chest at the anterior border of the sixth or seventh rib; but had better be done by a professional man. Do not starve the animal on bran mash, but allow turnips, carrots, grass, &c., with boiled linseed and barley, and a constant supply of clean cold water.

SORE SHOULDERS, ETC.

Badly fitted harness frequently causes sores on the skin; the shoulders and back suffering most. Such injuries vary from mere loss of hair to deep angry wounds; but something between these two extremes is what advice is generally sought for. Should the skin not be broken, but present a tender surface, a good application can be obtained by boiling together an ounce of Glycerine and two drachms of Fuller's Earth; to be smeared on cold. A simple skin wound will yield readily to salt and water, which of course is increased in value if coloured with Tinct. Lavender. But sores caused by harness are too frequently of a more serious character. Careless horse-keepers neglect a slight wound, and the irritation being kept up, a deep circular sore is the result, the margins of which become callous, and the centre covered by a hard scab, under which is always more or less matter. Such a wound, commonly called from the centre scab a sitfast, is most obstinate, showing little tendency to heal unaided. No half measures are of use; the scab must be removed, and the whole sore dressed with some caustic, as nitrate of silver or even corrosive sublimate (the first in stick, the latter dissolved in spirits of wine, ʒj. to the ounce). A very bad case is radically cured by an incision right through it, so as to alter the circular to an elliptical wound, at the same time starting healthy granulations.

It is common amongst heavy horses to see on the inside of saddles or collars, the padding roughly cut out over a wound with a view to prevent pressure upon it. This certainly spoils the harness, and very seldom answers, as the padding protrudes and keeps irritating the wound. The neatest, most effectual and economical method of relieving any sore from pressure, is by applying pads to the harness so that one rests above the sore and one below it. The pads may be made of chamois-leather, and stuffed with curled horse hair. Common-sense will point out that a pad must not be so applied to a collar as to press on the jugular veins.

SHOP-KEEPING DOCTORS.

In our series of articles on the "Condition and Practices of the Drug Trade," published in the volume of the Chemist and Druggist for last year, we took occasion to allude, in somewhat pointed terms, to the pernicious practice adopted by a large number of the weaker vessels belonging to the medical profession, of keeping what is usually termed an open retail. In our wanderings about London, in pursuit of the black sheep of our own fold, through Whitechapel, St. Giles's, Bermondsey, Rotherhithe, and other poor and unsavoury neighbourhoods, we came across incredible numbers of these gentry, the pharmacist pure and simple being quite the exception in some districts. No doubt in such localities as those we have named the medical man who sells corn-plasters and sherbet as well as his brains and judgment, may urge the excuse that were it not for the profit derived from the sale of medicines, perfumery, and druggists' sundries generally, he would be utterly unable to eke out enough to exist upon. This apology is always brought forward whenever the subject is mentioned by a pharmacist to a medical man, but the smallest amount of reasoning is all that is necessary to demolish the fragile fabric so frequently raised. A member of the medical profession, whether he be a L.S.A., a M.R.C.S., or a M.D., has no right to sell one single shilling's worth of any commodity to the public, whether it be a mixture he has dispensed from his own private prescription or a packet of lemon and kali that he sells to a child over the counter. We are glad to say that the heads of the medical profession and the leading literary organs are quite agreed upon this subject, and they take no pains to conceal their absolute disapproval of anything so derogatory to the dignity of the cloth as buying and selling. They are equally emphatic and plain in condemning anything approaching to advertising on the part of any of their colleagues, and go so far even as to fall foul of the authors of certain medical works who, they conceive, spend a little too much money in advertising them, thinking that such an unnecessary outlay is incurred more with the intention of increasing the roll call of their patients than of decreasing the stock of books in their publishers' warehouses.

Since our articles on the Drug Trade appeared, we have been performing a series of perambulations in more fashionable neighbourhoods than those we have previously visited, principally with a view of collecting information on the subject of pharmacists' shop windows, the results of which we intend shortly to place before our readers. When first we set out on these journeys, we were somewhat surprised to see the number of open retails that were kept by members of the medical body; but the farther we pursued our researches the greater the number of instances that came under our ken. We do not, let us trust, lay ourselves open to an action for libel, if we inform our readers that we purchased a pennyworth of salts at the shop of a M.R.C.S., within a stone's throw of the west end of Covent Garden Market; and another at a similar establishment very close indeed to an old-fashioned square not far from Dean-street, Oxford-street. We could also name a M.R.C.S. in good practice as a surgeon and accoucheur, who had a private house in a street close to a fashionable square, and an ordinary chemist's shop in a less fashionable street not a hundred yards off, both establishments playing profitably into each other's hands.

Now, although we most emphatically find a verdict of guilty against the shop-keeping surgeon, no matter where he may be found, we should be always glad to add to it a strong recommendation to mercy when dealing with a Ratcliff-highway or Bethnal-green culprit; but we must add contempt to our condemnation of the medical man who combines with his already lucrative practice, in a comfortable, middle-class, well-to-do neighbourhood, the almost equally profitable adjunct of the open retail, worked as it generally is by an ill-paid assistant, who is infinitely better acquainted with the trade than his master. In the former case we might almost regard the offender as a pharmacist, who added legal prescribing to his business; in the other we must look on him as a professional man, who stoops to trade merely for the love of greed.

In the sister profession of the law, a barrister who in any way was found guilty of advertising or soliciting practice, directly or indirectly, or who attempted to act as an attorney, would be at once disbarred by the indignant benchers of his inn. Why, then, should the medical man —who not only acts as a pharmacist, but also as a perfumer and confectioner—be permitted to escape with no severer punishment than is involved in a general allusion to the shortcomings of the profession in the condensed nonpariel of the backpages of the *Lancet* or the *Medical Times?* What would the heads of the legal profession not do to a silk gown who not only drew his own briefs but sold envelopes and sealing wax to his clients through the medium of his clerk? Were such practices to find favour amongst the members of the bar, we fear that gory heads would once more appear upon Temple Bar, and that A 299 would occasionally find a fat barrister or two impaled on the spikes of the railings round Lincoln's-inn-fields. An architect who acted as a builder or who sold bricks and tiles, or an artist who dealt in brushes and colours, would have but little chance of adding F.R.I.B.A. or R.A. to his name; but the honey soap and hair-oil selling M.D. comes in for none of these penalties.

The medical men who interfere with the legitimate trade of the pharmacist may be divided into two classes: those who dispense their own prescriptions privately to their own patients only, and those who keep an open retail shop and sell everything that by any possibility can be considered a druggists' sundry. We condemn both of these interlopers, once and for all, because they have no right to interfere with our trade. But there are other grounds, closely affecting the welfare of the public at large, upon which these practices ought to be interdicted by the powers that be. The medical man who has a private dispensary in a little cupboard at the end of his hall, which is dignified by the name of "Surgery," and who charges for advice and medicines *en bloc*, will naturally order as few medicaments as possible for his patients, and when times are hard and the Christmas bills will not come in, he may be sorely tempted to use damaged or inferior and cheaper preparations. Now it is, as we all know, not a good thing for a man, whether surgeon or pharmacist, to be sorely tempted, and we fear that the patients of such persons may often get weak doses for strong ones. Again, if in only tolerably decent practice, a medical man of this description cannot afford the time to renew his spoilable extracts and tinctures, or to dispense with that care and attention which are the characteristics of the energetic pharmacist who makes it his whole duty to attend to such matters from daybreak to sunset. The dispensing is consequently only too often confided to a willing wife or daughter. Indeed, we have heard of prescriptions being dispensed by a female servant, and a groom is said to have once applied to a country medical man for a situation on the ground that he always made up the draughts at his last place. We do not, of course, vouch for these anecdotes—they may have only been after-supper stories—but seriously we mean to assert that it is simply impossible for a medical man in anything like decent practice, whether in town or country, to dispense his prescriptions with such care and skill as a well-established pharmacist. The stock kept in such little glory-holes is often insignificant, and we have heard of a private dispensing surgeon who set up in business some time since, and ordered no less than £20 worth of drugs and chemicals from his wholesale druggist! In Bob Sawyer's famous shop, "one half of the drawers in which would not open, and the other half had nothing in them," must have spent more than this on his meagre stock. There are medical men of established reputation who defend this practice on the ground that they cannot get their prescriptions made up properly by the pharmacists of the neighbourhood; but this is a trivial excuse, for they know as well as we do that there are half-a-dozen ways of putting a stop to such malpractices. We care little to say anything in blame of the young L.S.A., who begins life with a few pounds, possibly saved out of his shabby stipend as assistant to some thriving brother, or perhaps scraped together by his struggling father, and who is almost compelled to buy a practice to which an open retail is attached—to such unfortunates we can only suggest that it is a pity that they chose a profession instead of an honourable trade. Let anyone go into the districts we have named and look into the careworn faces of these unhappy members of a glorious profession; let him look at their seedy black clothes and poverty-stricken looks, and compare them with these of the first carpenter or blacksmith that comes in for a "dose of physic," and say which of them looks the happier and better man. But we are straying out of our limits, for no doubt, in spite of all we can say, and all the world besides, there will always be young men of petty ambition who prefer bread and cheese and a profession to beef and pudding and a handicraft or a trade.

But we must ask our medical contemporaries, and the members of the profession generally, to join with us in loudly condemning the system of uniting medicine to pharmacy in such neighbourhoods as Soho-square, Manchester-square, Covent-garden, and similar districts; such practices are reprehensible from every point of view. The old proverb, *noblesse oblige*, surely applies to the members of the most noble of worldly callings quite as much as to the Howards and Stanleys of the House of Peers. Putting aside the question of professional dignity, cannot these gentlemen see that they are wronging the nearest neighbouring pharmacist out of a portion of his legitimate gains? We conceive that every pharmacist who keeps an open shop for dispensing prescriptions—a portion of his work that ought to be the marrow and bone of his business—has a certain right to the dispensing of the medicines ordered by the neighbouring physicians and surgeons, and that by either dispensing them themselves, or sending their patients to distant establishments, they help in a very great measure to transform the chemist and druggist into a mere huckster. The grounds for condemning these practices are as apparent as they are numerous, and are as well known to the members of the medical profession as they are to our own readers.

A great deal has been said by the medical press, from time to time, about counter practice; and the taunt has been launched against us that when pharmacists discontinue counter practice the medical men will shut up their shops and dispensaries. But this, we conceive, is a childish way of getting over the difficulty. Because pharmacists wrong doctors that is no reason why doctors should wrong pharmacists. We, on our side, might answer the taunt, and place ourselves and our medical friends in the position of the two Spanish grandees in the narrow lane, neither of whom would give way to the other. If our medical contemporaries deign to read our journal, they will see that from the very first we have sturdily and consistently denounced all *illegitimate* counter practice, and all evasive extensions of the lawful rights of the pharmacist in this direction. An examination of numberless articles in our pages will show them that we have been just as energetic in condemning the prescribing pharmacist as they ought to be in denouncing the shop-keeping doctor. We are glad to find that since pharmacy has taken a scientific and legal position in this country, that medical men are, in numerous instances, beginning to hold out the hand of fellowship to the pharmacist in spite of his keeping a shop. The members of the medical profession are beginning to see that true pharmacy, conducted on scientific principles, must be studied and worked out thoroughly, if disease is to be combated surely and safely; and we are pleased to hear that at nearly all our medical schools, increased interest is being taken by the students in chemistry and materia medica. We ask them, the heads of the medical profession, as well as our medical contemporaries, to help us by striving to put down the dispensing surgeon. They alone can devise a strong and powerful remedy for the disease that is eating into the fair face of their own profession, and which is, besides, doing ours an incalculable injury. We have various notions as to the best way of combating the disorder, but we cannot think of even hinting at them for fear of coming under the stigma of being counter prescribers. Let them only once commence the crusade and we will join them heart and soul in every way in our power. A little decisive action on both sides would soon have a good effect; and by the time that our present students shall have developed into veterans, the prescribing pharmacist and the shop-keeping doctor will be as extinct and fossil as the mammoth and the mastodon.

LADY PHARMACISTS.

NOT long since, a certain section of the medical profession gave us an opportunity of being amused or disgusted at their frantic efforts to "stamp out" the interference of ladies with their well-paid avocation. We cannot, however, doubt the policy, if we question the honour, of the course which was taken by the embryo physicians, and by some members of the profession who had something like a reputation also. Like the silversmiths of Ephesus, they foresaw that their craft was in danger, and as a few ladies were all they had to oppose, it was a very reasonable expectation that gibes and sneers would prove the best means of crushing such a mild invasion. But we are glad to see indications of the failure of this unmanly, not to say ungentlemanly, policy. Not only in America, but in England and on the Continent as well, there is a manifest and growing conviction of the fitness of many ladies for the medical profession, and of the suitability of many parts of the practice thereof to them. We have not had so much reason for universal satisfaction with the present practitioners as to believe the profession to be susceptible of no improvement; and there seems reason to believe that if a little more of the earnest and self-denying spirit of those ladies who as amateur doctors and nurses have won the respect and admiration of all, were imbued into general practice, this alone might be regarded as an amelioration in occasional instances.

It is unusual, no doubt, to find such a combination of skill and aptitute, with such courage and self-denying love, as was exhibited by Florence Nightingale; but we firmly believe that the latter are the most rare qualities, and that, to a greater or less degree, the skill and aptitude are common to most ladies, and may be considerably developed by education and practice. We, therefore, look on it as a promising prospect for the next generation that there is likely to be a recognised class of lady physicians, who will, doubtless, select and occupy themselves especially with those departments of practice for which they are best fitted. But if we thus congratulate ourselves on the admixture of this new element among the ranks of the doctors, what shall we say to the indications which we see around us of a similar invasion of our own profession? The publication of the Pharmaceutical Register disclosed to us the existence of a large number of Elizabeths, Marys, and Janes among the chemists and druggists of the United Kingdom entitled to registration. But these we presumed to be in most cases merely proprietresses of businesses, and not in many cases the actual directresses of them. It is clear, however, that in many quarters ladies "mean business" in the strictest sense of that phrase. In France, we are told, "a pharmacy has been opened at Montpelier by Madame Drumergue, Bachelor of Science, the first establishment of the kind (in that country) under the direction of a woman." "Professor Kapp, of Zurich, has opened a college in that city expressly for the instruction of ladies in medicine, pharmacy, chemistry, and veterinary science." The *Pall Mall Gazette* openly and deliberately commends pharmacy as an occupation particularly suitable to ladies; and, lastly, but to us most ominous of all, the last report of the examiners of the Pharmaceutical Society brought before us the unprecedented fact that two ladies had presented themselves for examination during the preceding session, and had passed most creditably. It is true that 2 to 1,261 is not a large proportion; but history has many other instances of great revolutions arising from beginnings as small as this. At the worst, however, we have not the slightest wish to discourage this new manifestation; we would rather choose to persuade ladies to join the business, if we could do so consistently with the desire that we have to serve their interests as well as the interests of the trade generally. They may be assured that even if they come in overwhelming numbers, they may at least depend on finding a fair field, and probably a little favour, for we cannot fix on any of our examiners who would not strain his prerogative a little to save a lady candidate from the disappointment of being plucked. But in all seriousness, we are very doubtful of the ultimate success of lady pharmacists, and we would respectfully warn them of the difficulties they will probably encounter, and of the poor rewards which at the best await them. We do not regard the study which will be required of them as much of an obstacle. Girls who can learn English grammar and Italian conjugations, can, if they please, acquire the bases of a pharmaceutical education. It will be a new sensation for Dr. Attfield to share with Byron and Tennyson the applause and admiration of the fair sex (in a literary point of view, we mean, of course); but on this point we do not dwell, for we believe that the ordinary attainments of chemists and druggists are not so very far beyond the possible reach of our lady friends. Nor in the matter of manipulation, respecting which some chemists are very proud, can we claim much superiority. Surely the fingers which can so truly pick out a vast mass of semi-quavers, and touch them all correctly on the key-board of a pianoforte, could handle a pair of scales, or stir a solution with a glass rod. It is not in the fine art of pharmacy that we anticipate the failure of our new allies, nor in the sale of perfumery, or the general routine of a retail business. A part of this is peculiarly suited to ladies' tastes. But it may be the prejudice of custom, or it may be, as it seems to us, an innate perception of the eternal fitness of things, that makes us revolt from the idea of a lady making pills, spreading plasters, stirring ointments, pressing tinctures, to say nothing of the more strictly chemical operations of the laboratory, or the grosser, but not more exceptional duties, at least in country stores, of serving out soft soap, chloride of lime, blue ointment, and the thousand and one dirty messes in which druggists are compelled to deal. It may be objected to thus—that a lady taking her position as the head of a pharmaceutical establishment would not necessarily occupy herself with such duties as those we have alluded to. This is true, but it is shirking the question. We are considering whether ladies are likely to develope into successful pharmacists, and whether the profession is likely to be congenial to them. And as no one can be called a pharmacist who is not perfectly competent to discharge all these duties, and who can prove his ability before examiners, it is manifest that all who devote themselves to the pursuit of pharmacy for a living must first of all train themselves by practice into habits and work which we cannot but think must for ever be distasteful to any lady whose other qualifications would give her a reasonable hope of success. We are sorry that our reflections on the subject will lead us to no other conclusion than this, for we should have been pleased to have set an example of liberality to our contemporaries on this matter, if we could have done so conscientiously. But while there are so many other avocations still occupied by men which seem to us so eminently suited to the genuis of ladies, we feel bound to advise them to exhaust those fields first. If, however, they are determined to come, and, as we said before, in some quarters they seem somewhat in earnest about it, what are we to call them? "Chemistess," "druggistess," and "pharmacistess" (we dare not use the plural number) are all clearly inadmissible and compound titles, and like the one we have used at the head of this paper, are generally objectionable. Evidently, the spirit of our language is against them; but this is a difficulty which can, perhaps, be best got over by a plan largely adopted in another profession, namely, by adapting from the French. Madame Drumergue, and all ladies who imitate her there, will, doubtless, be called "pharmaciennes." May we recommend the same title for English adoption in the cases of any ladies who shall choose our profession as their occupation?

INTERNATIONAL METRIC STANDARDS.

THE Warden of the Standards, in his Report to the Board of Trade, calls attention to an important paper upon the subject of the construction of primary International Standards of metric weights and measures. This is a report addressed to the Imperial Academy of Sciences at St. Petersburgh, by a Commission of members of the Academy specially appointed for the purpose, and consisting of MM. Struve, Wild, and Jacobi (the reporter). It bears date June, 1869.

These eminently scientific men recite the recommendations which had already been made by various men of science, and international congresses, as to the expediency of adopting uniform and universal fundamental units of weights and measures. They refer to the fact of the diversity which has arisen in course of time in the units of weight and measure in various countries, although originally the same. As an illustration, they draw attention to the differences of the foot and pound of the several European countries.

They admit, as an accomplished fact, that all civilised nations have tacitly agreed to recognise the French metric system as affording for the future the advantages of a universal system of weights and measures, and to adopt the standards deposited at the Palais des Archives at Paris as the primary units of this system, irrespective of the non-accordance of the Mètre des Archives with its scientific definition as the ten millionth part of the meridian quadrant.

But the metric standards at Paris are French standards, and all other countries who adopt the metric system are now compelled to apply to the French Government for permission to obtain copies. It is true that this permission is never withheld, but under the French regulations such copies are not compared directly with the standards of the Archives, but with duplicates at the Conservatoire Impérial des Arts et Métiers.

The Commission consider that this course of proceeding is not satisfactory as regards either the independence of the several States, the importance of the subject, or the scientific mode of construction and verification of the primary metric standards furnished for each country; that it also affords no guarantee for the scientific uniformity required in the fundamental units of an international system, even at the time when the standards are first obtained, and still less against diversities which may arise in course of time, which may extend to commercial weights and measures, such as those found by experience to have arisen in the weights and measures of different nations.

They accordingly propose that an International Commission should be nominated by the several governments, to be composed of delegates from all civilised countries. To this Commission should be intrusted the construction and verification of primary International Standards of measures of length, weight, and capacity, as the base upon which an universal system may be definitely established. They should also superintend the construction and verification of copies of these primary standards for the several countries.

CHAP. 113.

A.D. 1869.

An Act to prohibit for a limited period the importation, and to restrict and regulate the carriage, of Nitro Glycerine.

[11*th August*, 1869.]

WHEREAS the carriage and conveyance of nitro glycerine has been found to be attended with great risk and danger to the lives and property of Her Majesty's subjects, and it is desirable to restrict and regulate such carriage, and in particular to prevent the mischief which might arise from explosions in the removal and landing of nitro glycerine from ships, and for that purpose to prohibit the importation thereof:

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

Short title.

1. This Act may be cited for all purposes as "The Nitro Glycerine Act, 1869."

Interpretation of terms.

2. In the interpretation of this Act—

"Nitro glycerine" means the substance called or known by that name, or as glonoine oil, and this Act extends to every substance having nitro glycerine in any form as one of its component parts or ingredients in the same manner as if it were nitro glycerine:

"Court" includes any justices, sheriff, or magistrate exercising jurisdiction under the powers of this Act:

"Person" includes body corporate.

Prohibition of importation and exportation of nitro glycerine.

3. Save as herein-after mentioned, no person shall, after the passing of this Act, bring into any port or harbour of the United Kingdom, or ship or unship on, from, or near the coasts of any part of the United Kingdom, any nitro glycerine.

If any person acts in contravention of this section he shall be guilty of a misdemeanour, and shall, at the discretion of the Court, be liable to be imprisoned, with or without hard labour, for any term not exceeding one year, or to pay a penalty not exceeding five hundred pounds; and all nitro glycerine brought into any port or harbour, or shipped or unshipped in contravention of this section shall be forfeited.

If it is shown to the satisfaction of one of Her Majesty's Principal Secretaries of State that any substance having nitro glycerine in any form as one of its component parts or ingredients, can safely be brought into any port or harbour of the United Kingdom, or be safely shipped or unshipped on, from, or near the coasts of any port of the United Kingdom, he may by general or special licence authorize the introduction or exportation of such substance into or from the United Kingdom on such conditions as he thinks expedient.

No penalty shall be inflicted in pursuance of this section on any person bringing nitro glycerine into any port or harbour of the United Kingdom who proves to the satisfaction of the Court before which he is tried that he was driven into such port or harbour by stress of weather, that with as little delay as possible he gave notice to the authorities having jurisdiction in such port or harbour of the arrival of the ship bringing nitro glycerine, and that he conformed to any directions which may have been given him by such authorities.

Regulation as to the manufacture, sale, and carriage of nitro glycerine.

4. No person shall, after the expiration of four weeks from the passing of this Act, manufacture, sell, carry, or otherwise dispose of or have in his possession any nitro glycerine in any part of the United Kingdom, except in accordance with a general or special licence issued by one of Her Majesty's Principal Secretaries of State; the said Secretary of State may annex any absolute prohibitions or any restrictions to any licence granted by him in pursuance of this Act, limiting the manufacture, sale, carriage, disposal, or storage of nitro glycerine to particular persons, and to

particular places, and for particular purposes, or otherwise prohibiting or restricting the manufacture or use thereof in such manner as he thinks fit; he may also, in any case where he allows nitro glycerine to be carried, prohibit the carriage thereof along any public way, and add restrictions as to the persons by whom, the mode in which, the places from and to which, and the quantity in which any nitro glycerine is to be carried, and generally may make such provisions and restrictions, whether relating to the matters aforesaid, or any of them, as he thinks fit for the protection of the public against the danger arising from the manufacture, sale, carriage, disposal, or storage of nitro glycerine.

If any person manufactures, sells, carries, or otherwise disposes of or has in his possession any nitro glycerine without a general or special licence in pursuance of this Act, he shall be guilty of a misdemeanour, and shall in the discretion of the Court be liable to be imprisoned, with or without hard labour, for any period not exceeding one year, or to pay a penalty not exceeding five hundred pounds.

The said Secretary of State may annex to the breach of the conditions of any licence granted by him any punishment or penalty, not being greater than the punishment or penalty to which a person manufacturing, selling, carrying, disposing of, or having in his possession any nitro glycerine without a general or special license is made liable by this Act; and any pecuniary penalty so annexed may be recovered summarily if it does not exceed one hundred pounds.

Provided that no penalty shall be inflicted in in pursuance of this Act on any carrier, wharfinger, or warehouseman who satisfies the court that after using all due precautions the nitro glycerine was carried by him or was in his possession without his knowledge.

Provisions as to persons having nitro glycerine in their possession at the commencement of the Act.

5. Every person having any nitro glycerine in his possession at the time at which this Act is passed shall give notice thereof in writing to the said Secretary of State, stating such particulars in relation to the quantity, storage, and otherwise as the said Secretary of State may require; and the said Secretary of State may thereupon make such order in respect to the disposal thereof as he thinks just.

Any person failing to give such notice as required by this section will be subject to the same punishment and penalty to which a person manufacturing, selling, carrying, disposing of, or having in his possession any nitro glycerine without a licence is made liable by this Act.

Search for nitro glycerine.

6. Nitro glycerine may be searched for in the same manner, under the same warrants, and subject to the same conditions in, under, and subject to which gunpowder may be searched for in pursuance of the Act of the session of the twenty-third and twenty-fourth years of the reign of Her present Majesty, chapter one hundred and thirty-nine; and all the provisions of the said Act relating to searching for gunpowder are hereby incorporated with this Act, and shall for the purposes of this Act be construed as if the word "gunpowder" in such provisions included nitro-glycerine as defined by this Act, and as if the Act threin referred to were this Act, and those provisions shall be construed to extend to nitro glycerine imported or sold contrary to this Act.

INDIAN HEMP IN SLEEPLESSNESS.

THE Medical Press of the British Colonies is rapidly growing in importance as an original source of knowledge. It no longer shines with borrowed light only, but emits many bright rays of its own. The *Australian Medical Journal*, published in Melbourne, is a periodical with which any English medical journal may be profitably associated, on the principle of "give and take." The hundredth number, just received, is nearly filled with original articles, hospital reports, and papers read before the Medical Society of Victoria, which, together, give us a most favourable impression of the condition of medicine in the colony. The article which will be read with special interest by pharmacists is a letter to the editor describing the sensations of a patient under the influence of Haschish, or Indian Hemp. We reprint the greater part of this important communication:—

"For many months I had suffered very severely from nervousness and sleeplessness, or, if I obtained sleep, it was a disturbed and troublous sleep, unrefreshing, and broken by horrible dreams. I had better perhaps mention that these distressing symptoms followed a long period of illness and a painful bereavement which perpetually haunted me, and from the thoughts of which I could obtain no respite or relief. Atfer using opium, morphia, chlorodyne, and other anodynes without effect, the physician under whose care I was placed ordered some Indian hemp. Most laymen are unacquainted with the appearance of this drug, but I dare say the majority of your readers will know what sticky, pitchy, tarry, ill-smelling substance the haschish is. It was made into the form of pills, and the first dose, if I remember rightly, was a grain and a half, to be repeated in two hours if rest were not obtained. Very soon after taking the first dose I heard, or fancied I heard, a perpetual clanging and jangling of bells, out of tune and out of time, together with a perfect consciousness that I was lying still in bed, and that the noises were imaginary. Then the sound deepened into the monotonous roar of rushing waters and the surge of waves, then I believed myself drowning and struggling in the water; although there was still a faint under-current of consciousness that the water was unreal, while the suffocation was actual. Soon after, finding I did not sleep, a second dose was administered. Then a short time elapsed, possibly an hour of restlessness and anxiety about matters which in no wise concerned me. I remember being extraordinarily tormented by the consideration that Her Majesty did not reside in London, and other similarly absurd topics for my thoughts. Then a quiet rest, not sleep, but a perfect quiescence of body, soul, and mind, began to steal over me. I thought nothing, dreamt nothing, was but dimly conscious of existence, and to myself realized, with all reverence be it said, "the peace that passeth all understanding." I knew those about me; I am told I answered coherently when spoken to, and so there must be a mechanical power of reply without the exercise of volition, for I cannot recall that I exerted any power, either mental or bodily. Four or five hours went by in this pleasant state of quiet semi-consciousness before absolute sleep came. I did not feel sleepy, nor tired, nor restless, but suddenly fell from a waking perfection of rest into a dreamless death-like sleep. It did not, however, last more than three hours, but I awoke refreshed and clear in my head. I had no symptom of headache, nor any sensation of fulness of the head, which so often follows the taking of opium. The dose was repeated the next night, and the preliminary painful process was gone through, and the quiet rest and sleep followed the second dose as before; only that the waking rest was briefer, and the sleeping rest longer than hitherto. I need not repeat this; suffice it to say that without the haschish I did not obtain sleep—with it, I had perfect rest until more than a month had elapsed, and I was gaining strength and quiet rapidly. Some unusual excitement through the day brought about a reaction at night, and soon after falling into sleep from the effects of the haschish, I awoke delirious and terrified by some unknown and inexplicable fear. It was a kind of night-mare, and continued to torment me for hours. I thought I was burning—that I was drowning—dying. The doctor ordered some stimulants, which gradually produced a cessation from the frightful visions. On several subsequent occasions, I noticed that any unusual excitement in the day appeared to counteract the effect of the haschish at night, inasmuch as the very opposite results were produced. Ordinarily it gave rest and peace; occasionally it was followed by increased nervous excitement.

"My object in detailing this experience is more especially to draw attention to a valuable, though perhaps not always reliable agent for producing sleep or rest, and in the hope that some sufferer may be able to share in the peculiar benefits which it confers. In conclusion, I may add that I almost habitually take a small portion of Squire's Extract of Indian Hemp, and that I have not in course of three years found it necessary to materially increase the dose in order to produce the same result."

"OPIFERQUE PER ORBEM DICOR."

"And I am called a 'bringer of help' throughout the world."
—*Motto from English Apothecaries' Coat of Arms.*

BY HENRY W. LINCOLN.*

NO doubt every apothecary † who has looked above the mere routine of store duties, has found, in perusing the works of ancient history and heathen mythology, many pleasant fancies with which to beguile his time and make the dull and monotonous facts of life more endurable. Many of these works, particularly those of Virgil and Ovid, either in the original, or, better still, in those translations of some of the older British poets, such as Pope or Dryden, are very fascinating, and contain many facts connected with botany and pharmacy; and although Ovid in the original was considered so licentious a writer as to have been banished by the Roman Emperor Augustus for some of his works, still, shorn of some of their objectionable features, and clothed in the pleasant garb of English poetry, contain many charming illustrations which can be made use of for pleasure, if not for profit.

To commence with, I have the pleasure of presenting to the Association an earthen pill tile, rude, but ancient, and valuable on account of its antiquity, bearing on its face the apothecaries' coat of arms, and the motto which has suggested this paper. It is the gift of C. H. Atwood, of Boston, a member of this Association, who received it from Mr. Farrington, an honorary member, now deceased, who in his turn was presented with it by a friend, who procured it himself while in London from an apothecary. This is its history as far as known by the writer of this paper. Its age cannot be traced with any degree of precision. In Robson's British Herald can be found the following description of the coat of arms:—

"APOTHECARIES' COMPANY.

"London. Incorporated and arms and crest confirmed, Dec. 5, 1667; before which time they were united to the Grocers. Apollo with his head radiant, holding in his left hand a bow, in his right an arrow, supplanting a serpent. Crest on a wreath, a rhinoceros. Motto, 'opiferque per orbem dicor.'

"Note.—Supplanting a serpent are the words of the grant, but it is likewise blazoned 'bestriding a serpent.'"

In Burke's Encyclopædia of Heraldry, 1851, is the following description, which differs a little from that taken from Robson:—

"APOTHECARIES' COMPANY.

"In shield Apollo the inventor of physics, with his head radiant, holding in his left hand a bow, and in his right an arrow, supplanting a serpent. About the shield a helm, thereupon a mantle, and for a crest, upon a wreath of their colours, a rhinoceros, supported by two unicorns armed and ungulated. Upon a compartment, to make the achievement complete, this motto, 'opiferque per orbem dicor.'"

In Stone's "Survey of London," published in 1633, is the following:—

"The company of apothecaries that have divided themselves from the ancient society of grocers, grew so highly favoured by our Sovereign Lord, King James, that (as I have heard) he called them his Company, and granted the order for incorporation the sixth day of December, in the fifteenth year of his Highness Reigne, 1617, as the Master, Wardens, and Society of the Art and Mystery of Apothecaries, of the city of London."

The company of grocers, in elder times called Pepperers, were first incorporated by the name of grocers in the twentieth year of King Edward the Third, anno domini 1345.

Crest, a camel, supported by two griffins; on a shield nine peppercorns, or, as sometimes mentioned, cloves, and having for their motto "God grant grace."

In Burton's "Observations on London," published in 1730, we find an account of the arms of six-two of the trades of London, with woodcuts representing the shields and mottoes of the several companies, among which can be found the arms of the apothecaries' company.

In 1345, a person by the name of Coursus de Gangeland, on whom Edward the Third then settled a pension of sixpence a-day for life, for his attendance upon his Majesty while he lay sick in Scotland, is called in the grant an apothecary of London.

Those of the Association who partook of the hospitality of the Massachusetts College of Pharmacy, during the harbour excursion in 1865, may remember the engraved coat of arms at the heading of the bill of fare of the dinner at Point Shirley. This was a lithograph taken from a plate engraved for Mr. Kent, of East Boston, who got the design from an English engraver, and used it on a store label.

The motto of the coat of arms is taken from Ovid's Metamorphoses, in that portion where Daphne is transformed into a laurel.

"Daphne, a daughter of the river Peneus, is beloved by Apollo, and endeavours to remove herself from his importunities by flight. Fearful of being overtaken, the maiden invokes the assistance of her father, who, by the aid of the gods, changes her into a laurel."

The following is the history and description of Apollo:

Apollo, son of Jupiter and Latona, twin sister to Diana; called also Phœbus; often confounded with the sun.

Apollo was the god of all the fine arts—of medicine, music, poetry, and eloquence—of all of which he was deemed the inventor. He had received from Jupiter the power of knowing futurity, and he was the only one of the gods whose oracles were in general repute over the world. When his son Æsculapius had been killed by the thunders

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[*] This paper was read before the American Pharmaceutical Association, and is printed in the recently-issued volume of Proceedings.

[†] The "apothecary" of the United States corresponds to the English chemist and druggist.

of Jupiter for raising the dead to life, Apollo, in his resentment, killed the Cyclops who had forged the thunderbolts. For this act of violence he was banished from heaven by Jupiter, and remained in exile nine years, tending sheep in Thessaly. Apollo is generally represented with long hair, tall, beardless, with a handsome shape, holding in his hand a bow, and sometimes a lyre; his head is generally surrounded with beams of light.

It may be well to trace the general traits of some of the members of this supposed family.

Æsculapius, the son of Apollo, was deemed the god of medicine. He is represented with a large beard, holding in his hand a staff round which is wreathed a serpent. This is the "caduceus," which more properly belongs to Mercury.

Hygeia, the goddess of health, was the daughter of Æsculapius, and is generally represented as a young woman holding a serpent in one hand, and in the other a cup, out of which the serpent sometimes drank.

In the early stages of the practice of pharmacy, such was the proneness of the people to superstition, that Hippocrates and Galen complained that the mystic signs of Æsculapius had more effect upon their patients than their own prescriptions.

The motto and its connection read thus in Ovid:—

"Inventum medicina meum est, Opiferque per orbem
Dicor, et herbam subjecta potentia nobis."

Translated, it is as follows:—"Medicine is my invention, and I am called a 'bringer of help' throughout the world, and the power of herbs is subject to us."

The occasion which called forth the above is stated thus:—Apollo, fresh from his successful conflict with the serpent Python, looks with disdain upon Cupid, and banters him for having so small a bow and arrows by saying that they were only fit for children; and Cupid, to revenge himself upon him, is determined that he shall feel the effects of his darts, be they never so small, and for this purpose forges his arrows, one of gold and one of lead; the first to be used on Apollo, to cause desire, the other of lead for Daphne, to repel desire. Daphne flees to escape from Apollo, when, in order to make her abate her speed, he addresses her as follows. This is rendered by Dryden thus:—

"Perhaps thou know'st not my superior state,
And from that ignorance proceeds thy hate.
The King of gods begot me; what shall be,
Or is, or ever was, in fate, I see.
Mine is the invention of the charming lyre;
Sweet notes and heavenly numbers I inspire;
Sure is my bow, unerring is my dart;
But, ah! more deadly his who pierced my heart.
Medicine is mine, what herbs and simples grow
In fields and forest, all their powers I know,
And am the great physician called below.
Alas! that fields and forests can afford
No remedies to heal their love-sick lord;
To cure the pains of love no plant avails,
And his own physic the physician fails."

This has no other effect upon the fleeing fair one but to increase her speed, until she arrives at the banks of her paternal river, where she is changed at her request into a laurel. Dryden describes the transformation as follows:—

"Scarce had she finished when her feet she found
Benumbed with cold and fastened to the ground;
A filmy rind about her body grows;
Her hair to leaves, her arms extend to boughs;
The nymph is all into a laurel gone;
The smoothness of her skin remains alone.
Yet Phœbus loves her still, and casting round
Her form his arms, some little warmth he found.
The tree still panted in the unfinished part,
Not wholly vegetive, and heaved her heart.
He fixed his lips upon the trembling rind;
It swerved aside, and his embrace declined;
To whom the god—'Because thou canst not be
My mistress, I espouse thee for my tree;
Be thou the prize of honour and renown;
The deathless poet and the poem crown;
Thou shalt the Roman festivals adorn,
And, after poets, be by victors worn:
Thou shalt returning Cæsar's triumph grace,
When pomps shall in a long procession pass;
Wreathed on the post before his palace wait,
And be the sacred guardian of the gate:
Secure from thunder and unharmed by Jove;
Unfading as the immortal powers above:
And as the locks of Phœbus are unshorn,
So shall perpetual green thy boughs adorn.'"

This is certainly a very pretty description of some of the characteristics of the laurel family, which together with the name, Daphne, would seem to confirm the reasonableness of the fable.

The motto of the Apothecaries' Company has also been selected for the motto of a Scottish family named Keddie, having for their crest an open lancet.

One of the oldest of the apothecaries of Boston, a number of years ago, used on a label the words "Medicina meum inventum est," with more assumption than propriety.

In the heading of this paper the writer has given the most generally accepted translation of the motto; but the apothecary of our day could give it a more free rendering, and, perhaps, a better significance, as follows: "All over the world I am called a worker;" for early and late he is found at his post, and he is by no means an "eight-hour man."

In Malcolm's History of London, published in 1803, can be found the following notice of the

"*Company of Apothecaries.*—This fraternity is, doubtlessly, the most important of any which has been incorporated by the favour of our monarchs. Indeed, the lives of the publick are in a great measure in their keeping. A mistake committed by an apothecary has been known, by fatal experience, to be irrecoverable. For this reason the Legislature enacted, March 26th, 1564, 5th Elizabeth, 'The bill that apothecaries and their stuff shall be under the search of the College of Physicians.'"

April 6th, 1624. Sir Edward Coke reports for the Committee for Grievances a case of the grocers and apothecaries of London. The apothecaries, anciently of the Company of Grocers, complained that the latter interfered with their business by selling articles that more properly belonged to them. Whereupon it was "resolved that the apothecaries may, if they so think fit, prefer a bill into this house for the sole confection and making those medicines that require art and skill, and that are proper unto them."

April 19, 1624. An Act for incorporating the apothecaries of London, and within seven miles, was read the first time. James I., in the fourth year of his reign (1607), had incorporated the apothecaries with the grocers, but in consequence of a wish expressed by the apothecaries, enforced by the opinion of his own physician, he separated the sweets from the bitters, and rendered the apothecaries once more their own masters, in the fifteenth year of his reign (1617). By this latter Act he forbid all grocers, or others, from keeping shops for the retailing of medicines and nostrums; the sale of which he directed to be entirely under the management of the Master, Warden, and Fellows of the Apothecaries' Company, who were empowered to search all shops, in order to destroy such drugs as were unfit for use, and to levy fines.

In 1747, the Company applied to the Legislature for an increase of power in these particulars, owing to an increase of shops and several cases of malpractice being noted, from those who had entered into the business without proper skill. Previous to 1747, two medicines were sold by many out of one receptacle.

Samuel Crawton produced two medicinal compositions which he bought at Dr. Butler's dispensary, in Russell-street, Covent-garden. These were purchased by him at different times under the names of Venice treacle and mithridate; but, he observed, they were both taken from the same pot. Mr. Watson analyzed those compositions, and declared them to be very bad. The treacle tasted too strong of aniseed; and this he pronounced should be composed of one hundred different materials. The mithridate he believed to be made of the same drugs as the treacle, though they ought to be very different compositions, especially in regard to opium; one seventy-fifth part of the treacle should be opium, but not a two hundred and fortieth part in mithridate; so that if a sick person who was advised to take a quarter of an ounce of mithridate, should instead thereof take the same quantity of Venice treacle, he might be strangled by the violence of the operation of the opium. Other sophistications and substitutions were mentioned, such as true cinnamon water was imitated by cassia caryophyllata; syrup of balsam was prepared with the juice of marshmallows, to save sugar, etc. Such was the demand for bad medicines, that the chemists acknowledged they had been long in the habit of making real medicines for the honest part of the dealers, which they distinguished by the term "verum," and bad for the dishonest, which they styled "non verum."

According to the "Gentleman's Magazine," in the year 1736 several apothecaries and chemists were convicted by the magistrates for retailing spirituous liquors under various denominations, and fined one hundred pounds each. One of those persons pleaded that the right of selling them belonged originally to the Company of Apothecaries, who were the best judges of the quantity necessary to be administered, alleging he had found gin to be very efficacious in curing the gripes, and that that disorder had prevailed to an alarming extent since passing the act restraining the apothecaries in their practice.

Mr. Campbell, in his "London Tradesman," published in 1757, says:—

"I have classed the apothecary last, not out of any disrespect to this formidable body of men, or out of ignorance of their great importance, but because the other branches—the chemist and druggist—contribute to make up their shops. The apothecary is certainly the oldest son of the doctor, and his necessary assistant. The apothecary, simply as such, is only employed in composing of medicines by the doctor's prescription, without respect to their qualities; his knowledge of his profession is confined to the names of the drugs, of which he is not so much as to understand the etymology; he must only know that rhubarb is not Jesuit's bark, that oil is not salt, and that vinegar is not spirit. He must be able to call all the army of poisons by their proper heathenish names, and to pound them, boil them, and mix them into their proper companies, such as pills, boluses, linctures, electuaries, syrups, emulsions, juleps, etc., etc. He must understand the physical cabala, the mysterious character of an unintelligible doctor's scrawl; he must be alert and ready-handed in gilding his pills, and papering up his boluses with ingenious cuts and figures emblematical of their important uses; and have a nice taste in glasses, vials, and gallipots, and the judicious arrangement of their gilt labels to the advantage of his shop. This is a mere apothecary; a profession that requires very little brains. He wants a very strong memory, to retain such a number of cramp words as he is daily conversant with. There is no branch of business in which a man requires less money to set him up than this very profitable trade: ten or twenty pounds judiciously applied will buy gallipots and counters, and as many drugs to fill them with as might poison the whole island. His profits are inconceivable; 500 per cent. is the least he receives. The greatest part of his outlaying is in vials, small boxes, and cut paper, and these are often worth ten times what they contain."

Much more of the same sort follows, and we find the following good advice at the close of his article:—

"I would, therefore, have all parents, if they desire their son for an apothecary, give him an early and liberal education, and let him, either in the course of his apprenticeship, or before he sets up for himself, attend the anatomic, botanic, and physical lectures, at least for two seasons. With this and the experience he must pick up in his master's shop, he may safely depend upon his judgment in common cases."

They had a custom at the beginning of the last century of going a simpling, as it was called, two or three times a year, when they had a feast. This was in order to disseminate a knowledge of botany, and this laudable custom is still continued. Sir Hans Sloane granted the freehold of the physic garden at Chelsea to the company, upon condition that they should present annually to the Royal Society fifty new plants, until the number should amount to 2,000. The conditions were punctually complied with, and the specimens preserved in the archives of the Society. Bailey defines a "simpler" a gatherer, or one who has skill in simple herbs; "simples," all herbs or plants, as having each its particular virtue whereby it becomes a simple remedy.

At a later day, nearer our own time and in this country, by one of our sweetest poets, Bryant, we find that—

"The simpler comes with basket and book,
For herbs of power on thy banks to look."

It would be quite desirable to continue this paper, and include more fully the history of the Apothecaries' Company of London, but the writer feels that at present he has trespassed full enough upon the valuable time of the Association.

I will here summon "alliterations' artful aid," and say, perhaps a poor, plodding and prosy pharmaceutist may presume to peruse these pages to prove he can keep pace with this progressive period, and from the fair fields of fiction find fit food for future feasts. For he frequently can find fresh flowers of fancy from far-fetched fables.

In closing this historical notice, the writer feels that he cannot do better than to quote from the preface of an old work published in 1651, as follows:—

"In the mean time, if what I know may add to thy experience, thou hast it freely; and I hope this will be the occasion to set the expert artists on work, for the communicating their experience to the world. If thou knowest more or better things than these, be candid and impart them (considering that I wrote these for them that know them not); if not, accept of the endeavoures of thy friend."

LIQUOR BISMUTHI.

BY GEORGE F. H. MARKOE.*

THE writer has been called upon to prepare this solution quite frequently, and in considerable quantities, and after a careful trial of all the published formulas for its manufacture, has found some objection to all of them. The writer cheerfully acknowledges his indebtedness to Mr. N. Gray Bartlett, to whom we owe the first good working formula given in the *Am. Jour. Pharm.*, Jan., 1865. Mr. Albert E. Ebert, in the same journal, Jan., 1866, gives an improvement on Mr. Bartlett's process, by which he avoids the use of crystallised citrate of potassa, and forms the citrate of bismuth by adding citric acid to the nitrate of bismuth and then adding hydrate of potassa, by which means citrate of bismuth is precipitated and nitrate of potassa is obtained in solution, and is got rid of by washing the bismuth salt on a filter. Ebert's process is a good one; indeed, the best one that has been published, and the only objection the writer has to it is the use of caustic potassa to neutralise the nitric acid. The idea of adding the citric acid to the solution of nitrate of bismuth, must in justice be credited to Mr. Thos. P. Blunt, who first suggested it in the *Lond. Pharm. Journ.*, May, 1865.

The objections to caustic potassa are, that great care must be used to avoid an excess, from the fact that citrate of bismuth is freely soluble in potassa, and thus involves a loss of bismuth if any excess happens to be used; caustic potassa is a very troublesome chemical to keep in good condition, being very prone to attract both moisture and carbonic acid from the atmosphere, by which means it becomes in a great degree unfitted for use. It is a difficult matter to get caustic potassa free from carbonate, and still more difficult to keep it so, even if free from this impurity when the bottle is first opened. Another objection is that caustic potassa is expensive.

The following modified process offers a substitute for the caustic potassa that gives excellent results. This substitute is well crystallised carbonate of soda, a salt that can at all times be obtained of good quality at a very low price. Citrate of bismuth is less soluble in carbonate of soda than in caustic potassa, hence a gain is made by using the former.

The process is the following:—

Take of subcarbonate of bismuth, one troy ounce.
Citric acid (in powder,) 420 grains.
Nitric acid (sp. gr. 1·42,) one and a-half troy ounces.
Crystallised carbonate of soda, 1,150 grs.
Distilled water,
Alcohol, each a sufficient quantity.

Dissolve by gradual addition, the subcarbonate of bismuth in the nitric acid, and when the solution is completed dilute it with a fluid ounce of distilled water, add the citric acid, stir until it is dissolved. Dissolve the carbonate of soda in ten fluid ounces of distilled water, and gradually add the soda solution to the bismuth solution, constantly stirring the mixture. After standing for six or eight hours, transfer the mixture to a moistened paper filter, and wash to remove nitrate of soda. Transfer the magma to a mortar or evaporating dish, and carefully add water of ammonia until the citrate of bismuth is dissolved. Dilute the solution with an equal volume of distilled water, and treat half a fluid ounce (14·7 cubic centimetres) with an excess of sulphide of ammonium, or, better still, "*sulphide of sodium*" (as suggested by the writer in a paper presented to this Association, and published in the Proceedings for 1866, 252); collect and wash the sulphide of bismuth on a tarred filter (which has been exposed to the heat of a water bath, previous to being tarred), and heat on a water bath until thoroughly dry; allow the filter and contents to cool under a bell glass over sulphuric acid, and carefully weigh. Multiply the weight of the sulphide of bismuth by the fraction ·908 to find its equivalent in teroxide of bismuth. Apply the same ratio to the remainder of the bismuth solution, and dilute it to such a degree that each fluid drachm shall contain one grain of teroxide of bismuth, seven-eighths of which measure must be made with distilled water, and the remainder with alcohol. The average product of liquor bismuthi obtained in several trials was 51 fluid ounces, being about two per cent. better results than those obtained by Mr. Ebert's process.

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* Read before the American Pharmaceutical Association.

ON THE MEANS OF IMPROVEMENT FOR YOUNG PHARMACISTS.

BY PROF. EDWARD PARRISH.*

QUERY.—"What is the best scheme of Practical Instruction for young men preparing for the business of the Pharmacist, aside from the necessary service in the shop, with special view to those who are unable to attend a College of Pharmacy?"

THE class of young men referred to in this Query as "unable to attend a college of pharmacy," must, it seems to me, be very small, as even those compelled by adverse circumstances to struggle with poverty during minority, may surely acquire the small amount required to take a college course, after passing through their apprenticeship, and receiving the salary of clerks for a few years. Many such annually seek the colleges, impressed by the conviction that it is only by thus completing their professional training, in a regularly chartered institution, that they can properly go before the public as experts. It would be most desirable, indeed, that none but experts should be allowed to carry a diploma from our colleges, but our present systems of instruction are too incomplete, as yet, and many of our students enter them with far too little previous mental training to insure such thoroughness as every well-wisher of our profession must desire.

The leading features in the professional training of a pharmacist are such as pertain to almost all pursuits. Patient industry and application, and a real desire to learn, well conceived and thoroughly maintained throughout those periods of life most fitted for the acquisition of knowledge and skill, will insure success.

In place of any detailed scheme of practical instruction we may best consider, under three general heads, the obvious means of improvement within reach of every apprentice in a drug store, however indifferent to his interests his employer may be and however restricted his means of improvement.

First. Observation.—The cultivation of the senses of sight, touch, taste, and smell, is of prime importance to the pharmacist, as it is, indeed, to every dealer in merchandize. The well-trained dry goods merchant is so accustomed to every shade of colour and surface, that he will detect the differences in cloths, or calicoes, or silks, quite unobserved by the eye of one not accustomed to such nice discrimination. It is said that in the great marts of the wine trade, professional tasters are employed, at large salaries, whose palates are so cultivated by use that they cannot only distinguish any one kind of wine from another, but can designate almost the precise age of a specimen, and with certainty guard their employers against the least adulteration or sophistication. These instances show what may be attained by cultivating the senses, so obvious a branch of professional education, that no argument is needed to show its necessity to the young man who would not only know drugs and preparations by their sensible properties, but also learn to detect every appearance indicating their variance from standard qualities. In this connection I would allude to an aid to the eye, which commends itself to all who can command it—the microscope. By this little instrument, now so wonderfully perfected, the intricacies of structure are so laid open as to increase immensely the ability of scrutiny by the eye. A student's microscope can be purchased for 8 dols., which will not only serve an admirable practical purpose in examining drugs, but will afford an inexhaustible fund of entertainment and instruction during intervals of otherwise unemployed time.

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* Read before the American Pharmaceutical Association.

Second. Experiment.—The little word *try* conveys a lesson which every one should learn at the very outset of his course. Every prescription compounded, every preparation made, should indeed be regarded as an experiment; the circumstances of any two manipulations cannot be precisely the same, the results must, therefore, vary more or less, and lessons of deep scientific import may often be learned by the attentive manipulator, in the course of his daily duties. It is, however, by premeditated and well directed experiments that practical knowledge is best acquired. Questions are constantly presenting themselves to the inquisitive pharmacist which must be systematically approached by a series of tests so intelligently applied, that their aggregate results will either furnish an answer or prove our inability to furnish one.

The characteristics of the drugs we daily handle should not only be the subject of careful physical scrutiny, but of chemical tests. Our Pharmacopœia indicates many of these so exactly, and in language so devoid of technicalities, that the merest tyro may practise them, and with apparatus so simple and easily attainable, that no excuse is left for neglecting this obvious means of improvement.

Finally. Reading.—Blessed agencies are good books in every scheme of education. What wonderful facilities for improvement do these furnish in the present day, as compared with any previous period.

In chemistry and pharmacy, notwithstanding the immense increase of the domain of these sciences, ample text books have brought the leading principles within the reach of all, while the U. S. Dispensatory, found in the humblest drug store, is the depository of such stores of knowledge, so conveniently arranged, that it may well be the companion of every student, till he has at least once gone over its pages; if possible, having one more advanced in its study to examine him upon its leading facts, until they are as much as may be stamped upon his memory. In what I have thus sketched in regard to self-education for the duties of the shop and laboratory, I must not be understood as ignoring the importance of an experienced and sympathising preceptor to aid, encourage, and stimulate the student—a man who has taken an apprentice not alone to exact from him four or five years of drudgery and toil, but who acknowledges the obligation to develop in him those facilities which will make him useful, successful, and honourable in his profession. The student who has fallen into the hands of such a master, has a motive to which very many of our young men are strangers. To him whose hard lot is to work sixteen hours a day, compelled to steal from sleep and from the usual intervals of recreation the hours necessary for experiment and study, and to unravel the difficulties of his novitiate by his own wits, or those of his fellow-apprentices, I would suggest the solace of society. Why might not six or eight young men, engaged in drug stores in the same town, organise for improvement in their business? Let them unite their several pieces of apparatus into a practical laboratory, combine their books into a library, and throw their talents and acquired knowledge into a common stock. Good times they would have on long winter evenings—more profitable discussions than those of the neighbouring bar-rooms—their friendships would be cemented by kindred motives and pursuits, and ennobled by the glorious consciousness of adding to their own and each other's means of permanent enjoyment and usefulness.

ON SUPPOSITORIES.

BY CHARLES E. EBERLE.*

QUERY.—Is there a rapid method for making suppositories whereby the use of a hardening ingredient in connection with cacao butter will not be required?

WHEN suppositories were first re-introduced, and became popular with the medical profession of the day, it was more or less difficult to procure at all times a good sample of cacao butter, and so much of that furnished by the jobber was adulterated with fats having a lower fusing point than its ordinary application suggested, and required uniformly the use of a hardening ingredient when suppositories were to be prepared.

The best samples, however, now furnished for pharmaceutical use are not open to this objection, and in our hottest summer months can be handled with impunity, remaining firm and dense under the necessary manipulation.

No other substance or combination can well be substituted for it in this peculiar application of medicine, or at least none has yet been introduced claiming to supersede it.

The peculiar opinions of different pharmacists regarding the amount of hardening ingredient necessary to be added to cacao butter varying with the individual, I have not found two to accord perfectly.

While Mr. Markoe, in the climate of Boston, uses a proportion of one-third spermaceti, Mr. J. B. Moore, of Philadelphia latitude, whose paper in the May *Journal of Pharmacy* is the most valuable yet contributed on this subject in its practical application (and whose samples on exhibition at this meeting are perfect specimens of art), makes no admixture from October to June, thereafter adding a small portion of Japan wax.

The supposed effect of these small additions has been much over-estimated; no appreciable amount of time in hasty preparation is gained by the combination of wax until one-fifth is added, neither with paraffine, spermaceti, or the Japan vegetable wax. Cacao butter, at ordinary temperatures, after a time sets in the mould and may be removed by its own gravity; the admixture often aggregates in a few days to a condition requiring more than animal heat for its fusion, and have been complained of by the physician for producing local irritation or being ejected from the rectum before disintegration.

There are occasional prescriptions of medicinal ingredients where the ol. theobromæ seems to require an addition, and it can properly be made where a large amount of soft medicinal extract is to be incorporated, or a solution of subsulphate of iron, for instance; but the dry powders, vegetable or mineral, need no assistance; they contribute to the hardening of the butter, and in the case of oxide of zinc, carb. of lead, iodides of lead, and cadmium, produce rapid aggregation.

The object of using suppositories is only gained where they fuse slowly, at animal temperature.

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* Read before the American Pharmaceutical Association.

Mr. Markoe moulds his mixture of wax and butter and has the suppository unmedicated on hand. When the prescription arrives for their preparation, he remelts the number required, and, after medication, remoulds, thus doing away with the trouble of weighing the excipient, and insuring exactness in result—a commendable plan, as you will observe.

The greatest annoyance in the preparation of these appliances occurs when the pharmacist is called at night from his bed, the applicant impatient, weather hot, store close, and flies troublesome, to furnish a dozen or more. There is no supply of ice in his soda water apparatus, cold spring water is not to be had in the cities, and would not largely facilitate their cooling in the mould. The temptation is certainly great to add a large proportion of foreign excipient, and I am aware it is often done.

To reach such victims who, regardless of a trifling expense, would welcome the departure of his customer, I offer a plan which answers well in practice: Procure a tin box eighteen inches long, six inches broad, and six in height, arrange a cover of fine wire gauze, prepare a rest for suppository moulds, made of wires crossing at right angles and fastened at each intersection; a ledge of tin is placed on the sides of the box, upon which the wire frame rests. One end of the box, four inches from the top, is perforated three-eighths of an inch in diameter, to admit the discharging tube of an atomizing apparatus. All things being adjusted, the fluid mass is poured into the moulds at the opposite end of the box from that perforated, or at such nearer position as may be requisite, the gauze cover placed in position and a spray of rhigoline, ether, or a mixture of alcohol and ether discharged against the offending moulds.

The happy pharmacist, satisfied with the rapid cooling, exclaims, "hang the expense," pours from the box what is condensed of the vaporising fluid and dismisses his customer, alas! too often to again have his blissful dreams disturbed before the advent of a morrow's sun.

Suppositories should always be passed over the counter with direction to keep in a cool place when not wanted for use, and to be then handled quickly. Servants should also be cautioned against placing the bottle in the pocket, or immediately contiguous to the person.

A great need is felt of a *low-priced* suppository adjuster, I am not aware that one exists, but believe the invention would meet with ready sale.

Shaved ice answers better for cooling than broken, or ice and water; a better mixture is shaved ice and salt.

ON THE USE OF YELLOW WAX IN OINTMENTS.

BY FERRIS BRINGHURST.*

QUERY.—It has been asserted that yellow wax is better than bleached wax for the preparation of Ceratum and Unguentum adipis. If this be true, what principle in the crude wax possesses this property, and for what extent of time may its conservative power be relied on?

In reply to query 35th, the writer to whom the matter was referred, regrets his inability, either from the writings of others or his own experiments, to say with certainty to what principle yellow wax owes its preservative properties; but inclines to the belief that it is balsamic, containing benzoic or some analogous acid.

To give some idea of the length of time for which the conservative power of yellow wax may be relied on, the writer would ask attention to the samples of cerates which accompany this paper.

No. 1. Ceratum adipis, made with good yellow wax January 25th, 1867, and now nearly twenty months' old, is in a good state of preservation.

No. 2. Ceratum adipis, made with Phillips' strained yellow wax, March 11th, 1867, now about eighteen months' old, is in a good state of preservation.

No. 3. Ceratum adipis, made with Phillips' bleached wax, March 11th, 1867, now about eighteen months' old, bears decided evidence of rancidity.

These samples were all made from the same lot of lard, have been kept partly in the cellar and partly on the shelves in the store, exposed to the same temperature that the cerates of the shop are required to stand; generally covered to keep out dust, but always together, and hence under precisely the same circumstances.

The writer would here state that in former times, when using bleached wax, he has often been obliged to throw away portions of simple cerate as unfit for use on an inflamed surface, but that since using the yellow wax (now about four years) no such occasion has arisen.

In the preparation of cold cream, which is required to be particularly white, the writer continues the use of bleached wax; but in making glycerine cream yellow wax is used, and, while the latter keeps perfectly well, the former sometimes bears evidence of rancidity perceptible over the perfumed waters and essential oils in its composition.

In making ceratum plumbi subacetatis, or Goulard's cerate, which is perhaps the most difficult to preserve of the officinal cerates and ointments, the writer uses yellow wax, and finds it to keep much better than when made with white wax, though there is one slight objection to its use, which is the change of colour, at least in the surface, from yellow to white, partly from a partial decomposition of the subacetate of lead and deposit of carbonate. Of course the same decomposition occurs with the use of white wax in this cerate, but not the change of colour.

Samples 4, 5, and 6, will show to some extent the difference in the use of yellow and bleached wax in the preparation of this cerate.

In conclusion, the writer would remark that he conceives that in bleaching wax not only is the balsamic or preservative principle destroyed, but that during the process rancidification is started in the wax; and that as old vinegar or "mother" super-induces the acetous fermentation in cider, so bleached wax renders rancidification more certain and rapid in all cerates and ointments in which it is used.

HAMPSON'S FLUODENTINE.

An elegant and showy article for the counter, which, after attracting by its appearance, will certainly please in its use. There is no reason why we should not use liquid preparations to cleanse our teeth with, and the fluodentine leaves a pleasant flavour in the mouth, which smokers will know how to enjoy. Manchester chemists are clever at preparations for the teeth.

MATHER'S VENT-PEG.

By the application of Dolby's Patent Valve to a vent-peg, Mr. Mather has produced one which is simply perfection.

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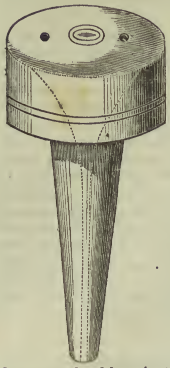
* Read before the American Pharmaceutical Association.



When fitted into the cask the air is admitted through it in exactly the same proportion as the liquid passes from the tap, but by no possibility can any air or gas escape. This ensures, as far as a vent-peg can, good beer so long as any remains in the cask; and we are assured by brewers that imperfect vent-pegs are largely responsible for that most unwholesome of all messes—sour beer. To test the efficiency of the vent-peg, we saw one tried. On sucking the valve in the most gentle manner at the bottom of the vent-peg, the air was drawn through most easily, but no amount of lung-power could force a breath through. They are to retail at sixpence each; and to those who keep a cask of beer in their houses six shillings would be cheap for their value.

REVIEWS

A Pharmacopœia, including the Outlines of Materia Medica and Therapeutics, for the Use of Practitioners and Students of Veterinary Medicine. By Richard V. Tuson, F.C.S., Professor of Chemistry and Materia Medica at the Royal Veterinary College, etc. Post 8vo, pp. 311, price 7s. (London: J. Churchill and Sons.)

Not only practitioners and students of veterinary medicine, but chemists and druggists will find that this book supplies a want in veterinary literature. We have had a number of works more or less useful on materia medica, therapeutics, and pharmacy conjoined, but, doubtless, as text and reference books, the most desirable are those treating of one special branch. The work before us is strictly a veterinary pharmacopœia. The author is a scientific chemist, not a medical man, and has with prudence abstained from all but the merest outline of therapeutics.

The agents are arranged in alphabetical order, after the plan of the British Pharmacopœia and each substance is considered under the following heads:—Name and Synonym, Composition, Mode of Preparation, Characters and Tests, Action and Uses—Doses, Modes of Application, Incompatibles, Antidotes, and Preparations. We shall shortly consider the contents under these sub-heads.

Taking *Names and Synonyms,* we find, as stated in the preface, some old preparations under new names. A sudden change in nomenclature is very confusing. To avoid this, we have the old one mentioned, and a copious index to enable the substance to be readily found. Veterinary practitioners' pharmacies now contain many labels which give no clue to the composition of the compound. If this book comes into general favour, and we believe it will, there is a chance of this difficulty being overcome. We do not like such names as Digestive Ointment, Healing Ointment, etc.; they tell us nothing of the substances, and usually a falsehood concerning their action. They are here replaced by Ung. Resinæ and Ung. Zinci Carb.

Composition and Preparation.—Under these two headings there is much useful information. The preparations in some cases differ from the British Pharmacopœia, and we think with advantage, *e.g.,* the lavander is omitted from Liq. Arsenicalis; Tinct. Iodi is five times stronger (by-the-bye, it ought to be Tinct. Iodi Comp.), and the Sp. Ammon. Arom. is one-half stronger. A common mistake in the preparation of mustard poultices is pointed out, viz., the use of boiling water. We think a somewhat similar one is made in recommending decoction of tobacco to be prepared by boiling. Would not this drive off some of the active volatile principles? We prefer a hot infusion. There is no mention of Oxymel, a useful preparation. We have numerous extracts and infusions which are very handy forms for veterinary medicines. The use of concentrated infusions by practitioners, we think, would be much more common if they were more widely sold.

The *Characters and Tests* are shortly and clearly given, yet sufficiently in detail to enable anyone to detect the substance and its impurities.

Actions and Uses.—Though we cannot say the matter under this head is not good, yet it is inferior to the rest. Actions are given in such abundance, and with such unqualified shortness, that implicit faith must receive a rude shock on coming to practice. There are, too, some statements we cannot pass so lightly. Tartar emetic is said to be an alterative, antiphlogistic, and sedative, to promote the secretion of the mucous membranes, skin, liver, pancreas, and kidneys. Now experiments made in France, mentioned by Pereira, and proved by the late Mr. Barlow, show that even ounce doses have little effect on the horse, or ruminants. Sheep have had four ounces with no marked symptoms, and a horse has taken a pound with little effect. Tartar emetic is of no use in veterinary medicine, save as an emetic for dogs and pigs. Calomel is said to have a dozen different actions; we venture to say its power is considerably overestimated. Chologogue, alterative, and antiphlogistic are terms, applied to any drug, requiring considerable faith to appreciate. Alum, we are told, may be used as an "astringent to open joints and wounded thecæ." Alum coagulates albumen, but in excess redissolves it. For this reason it cannot be equal to corrosive sublimate, which our author also mentions for the purpose. Under the head Adeps, we are told that it is "occasionally used to kill acari in mange and scab." If it is, the user will be disappointed, as acari thrive in fats.

Regarding the sub-heading *Doses,* we would merely suggest that the doses for cattle are somewhat small.

Modes of Application.—These are useful paragraphs, teaching us when to use oily, watery, or mucilaginous vehicles, and giving the quantity of dilution necessary to prevent injury by strong agents, such as Liq. Ammon. fort. In the case of Ammon. Carb., *cold* gruel is recommended as a vehicle.

Incompatibles and Antidotes.—These two may be considered together, as the former are frequently both. Though there is an omission or two, this division is well treated. Charcoal under Carbo Ligni is said to be an antidote to vegetable poisons, but under the various alkaloids there is no mention of it; the repetition would, we think, have been an improvement. We looked for, but did not find, iodine mentioned as an antidote for strychnine, and belladonna for opium; our own experience is strong in their favour. In the preface, the author says, "No doubt, in many instances, the incompatibility indicated is based upon hypothesis rather than upon the results of observation or experiment." Perhaps this accounts for the combination of lead and opium in the liq. plumbi subacetatis et opii. Another incompatible eye-lotion not mentioned is of common use

—nitrate of silver and opium. By-the-bye, lead solutions should never be used to the eye if the cornea be abraded.

There are some medicaments totally omitted which, in a future edition, deserve a place, as tartaric and oxalic acids, valerian, squills, copaiba, kino, oil of male fern, and kousso.

We have pointed out, perhaps too minutely, the defects of the work, but must say they are in small proportion to the mass of really good and valuable matter.

As a reference for chemists and practitioners, it is first-class, and its style is something superior to that of ordinary veterinary works. At the end of the book we find useful tables of the weights and measures of the British Pharmacopœia, and the metrical system; also an "Index to Veterinary Medicines, arranged according to their Actions and Uses." The general index is very copious and fairly correct.

An Introduction to the Science of Heat, designed for the Use of Schools and Candidates for University Matriculation Examinations. By Temple Augustus Orme. 8vo., pp. 203, price 3s. 6d. London: Groombridge and Sons.

An Elementary Course of Theoretical and Applied Mechanics. By Richard Wormell, M.A., B. Sc. 8vo., pp. 238, price 4s. London: Groombridge and Sons.

These additions to the student's library are uniform with Mr. Barff's *Introduction to Scientific Chemistry*, a new edition of which has just appeared; and we congratulate Messrs. Groombridge and Sons on having commenced their series of Science Manuals with three such excellent books.

Mr. Orme's treatise on Heat is intended for "those who possess a fair knowledge of arithmetic, and have an ordinary amount of intelligence." It explains clearly the phenomena of heat, and supplies the student with numerous examples and problems. By conscientiously following the path of study indicated by the author, a youth will find that his "fair knowledge of arithmetic" is a key which unlocks many of the doors in the temple of science, and that an "ordinary amount of intelligence" can compass a vast body of truth. Those who attempt to solve the problems given in our own "Corner for Students," will find in Mr. Orme's book a lucid exposition of many of the physical laws which have to be considered in the determination of gaseous expansion or contraction at varying temperatures and pressures. We can cordially recommend this manual as an introduction to a part of physical science which cannot be separated from Chemistry, and which elucidates a vast number of interesting and familiar phenomena.

Mr. Wormell's book cannot be too warmly praised as an introduction to the study of theoretical and applied mechanics. It contains exact but simple demonstrations of all the propositions usually given in similar elementary treatises, with numerous experimental illustrations and practical applications. It is specially adapted to the curriculum of the University of London, but the author has succeeded in making it a useful text-book for schools generally, and for students preparing for other examinations. In many of the propositions the demonstrations necessarily involve abstruse geometrical and algebraical considerations, but the author has shown that the contents of the book may be studied in three courses, the first of which merely requires a knowledge of algebra to simple equations, and of the geometry of triangles and circles. Numerous exercises are given in every section, and there is an appendix containing the London University Examination Papers in Mechanics, from January, 1862, to July, 1869. In conclusion, we may state that this admirable treatise is profusely illustrated with woodcuts.

On the Nature and Treatment of Milk Fever in Cows. By Day, Son, and Hewitt.

According to the authors of this pamphlet, there can be little doubt that the terrible milk-fever of cows is a blood disease, caused by the entrance into the circulation of a specific and destructive poison, in the same way that glanders, hydrophobia, rinderpest, and small-pox are produced. They reject Dr. Moore's hypothesis, that the disease is merely a condition of "blood-weakness and circulation-distress," but they admit that his practice, which consists in the use of stimulants and good nursing, may in certain stages of the disease avert a fatal termination. No one can peruse this pamphlet without being impressed by its scientific tone. The authors have evidently observed the symptoms of milk-fever most carefully, and their plan of treatment appears to have been well thought out, and justified by great experience. Those who are likely to be consulted respecting the pathology and treatment of the disease should study this suggestive pamphlet.

Corner for Students.

CONDUCTED BY RICHARD J. MOSS.

The chemical formulæ employed in this section are based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopœia* the symbols corresponding to those adopted here are printed in heavy Clarendon type. The chemical nomenclature generally used in this Corner for Students agrees with that adopted in the new edition of *Fownes's Manual of Chemistry*, which is recommended as a text-book.

QUESTIONS.

I. Acidum Citricum, *B.P.*—Express symbolically the reactions involved in the preparation of this substance by the officinal process; and state what impurities should be detected by the tests given under the head of "Characters and Tests."

II. Antimonium Tartaratum, *B.P.*—What weight in grammes of ferrous sulphide is required to produce sufficient hydrogen monosulphide for the decomposition of one ounce of this substance?

III. Potassæ Prussias Flava, *B.P.*—Give the names and formulæ of the blue, red, and white precipitates noticed under the tests for this compound.

IV. Sodæ Arsenias, *B.P.*—Represent by means of symbolic equations the reaction which takes place in the preparation of this substance by the officinal process.

V. Sulphur Præcipitatum, *B.P.*—What reaction takes place when sulphur is boiled with calcium hydrate? Explain the precipitation of sulphur which occurs on the addition of hydrochloric acid to the united filtrates in the officinal process for the preparation of this substance.

VI. Nessler's Solution.—Express in the form of a symbolic equation the reaction which takes place on the addition of Nessler's solution to a fluid containing an ammonium salt.

VII. Magnesium.—After washing and drying a precipitate of ammonium and magnesium phosphate (obtained in the analysis of a magnesium salt), it is heated to redness, and when cool found to weigh 27·75 grains. With what quantity of Magnesiæ Carbonas, *B.P.*, does this weight correspond?

VIII. Soda Crystals.—What are the principal impurities usually found in commercial soda crystals? State how they may be detected, and give a process for the purification of the crystals on a small scale.

IX. Composition of the Atmosphere.—The average composition of the atmosphere by volume is as follows: in 100 volumes—

Oxygen	20·61
Nitrogen	77·95
Carbonic anhydride	·04
Aqueous vapour	1·40

What is its percentage composition by weight?

X. Coal.—100 grains of a coal having the following composition are burned in air, what is the weight in grains of the different products?

Carbon	71·08
Hydrogen	4·88
Nitrogen	0·95
Sulphur	1·37
Oxygen	17·87
Ash	3·85

ANSWERS.

I. Ammonia.—The volume of the residual gas, dry, at the given temperature and pressure is 287·870 cubic centimetres.

As the molecular weight of ammonium chloride is 53·5, and as this weight in grammes yields when decomposed 22·38 litres, or 22,380 cubic centimetres of ammonia, it follows that the volume of ammonia produced by the decomposition of 1 gramme of the chloride is found by the following proportion:—

$$53{\cdot}5 : 1 = 22380 : x \therefore x = 418{\cdot}31776.$$

To correct this volume for the given temperature, 11° C., we have the following proportion:—

$$273 : 273 + 11 = 418{\cdot}31776 : x \therefore x = 435{\cdot}173.$$

To find what this volume would be at the given pressure 745 mm. we have the following proportion:—

$$745 : 760 = 435{\cdot}173 : x \therefore x = 443{\cdot}935.$$

When the volume of ammonia is decomposed by a current of electric sparks it is doubled, the 887·87 cc. produced consisting of 221·9675 cc. of nitrogen, and 665·9025 cc. of hydrogen. The 300 c.c. of oxygen which are added combine with 600 cc. of hydrogen to form water, leaving (665·9025 – 600) 65·9025 cc. of hydrogen and 221·9675 cc. of nitrogen; therefore the volume of the residual gas is 287·870 cc.

II. Gas Volume.—The volume of the gas at the given temperature and pressure is 2·475 litres.

By deducting the height of the mercury in the gas vessel from the height of mercury in the barometer, we have the actual pressure to which the gas was subject at the time of measurement; therefore, the following proportion gives the volume at the standard pressure:—

$$760 : 751-87 = 3{\cdot}04 : x \therefore x = 2{\cdot}656.$$

To correct this volume for the given temperature, we have the proportion—

$$273 + 20 : 273 = 2{\cdot}656 : x \therefore x = 2{\cdot}475.$$

III. Copper Ore.—The ore contains 24·553 per cent. of copper. When potassium iodide is added to the copper nitrate, we have the following reaction:—

$$Cu(NO_3)_2 + 2\,KI = CuI + 2KNO_3 + I,$$

from which it is evident that for every atom of copper in solution, an atom of iodine is liberated. The removal of the free iodine by the solution of sodium hyposulphite is indicated thus: $2Na_2S_2O_3 + I_2 = 2NaI + Na_2S_4O_6$; one molecule of sodium hyposulphite being required for every atom of iodine, and, consequently, for every atom of copper. As the volumetric solution of sodium hyposulphite (*B.P.*) contains one-tenth of a molecule in 1000 grain measures, it follows that this quantity corresponds to one-tenth of an atom, or 6·35 grains of copper; therefore 580 grain measures indicate 3·683 grains of copper; thus:—

$$1000 : 580 = 6{\cdot}35 : x \therefore x = 3{\cdot}683.$$

This being the weight of copper in 15 grains of the ore, the per centage is ascertained by the following proportion:—

$$15 : 100 = 3{\cdot}683 : x \therefore x = 24{\cdot}553.$$

IV. Empirical Formula.—The name of the substance is carbolic acid, or phenyl alcohol. The empirical formula C_6H_6O is obtained by dividing the percentage weights of its constituents by their respective atomic weights, thus:—

$$\begin{aligned} C \quad 76{\cdot}59 \div 12 &= 6{\cdot}38. \\ H \quad 6{\cdot}38 \div 1 &= 6{\cdot}38. \\ O \quad 17{\cdot}03 \div 16 &= 1{\cdot}06. \end{aligned}$$

The quotients thus obtained are in the ratio of 6, 6, and 1, corresponding with the formula, C_6H_6O.

V. Vinegar.—The quantity of vinegar which should be produced is 127·504 gallons.

342 pounds of cane sugar yield 204 pounds of acetic anhydride, thus:—

$$\begin{aligned} C_{12}H_{22}O_{11} + H_2O &= 2C_6H_{12}O_6 \text{ glucose.} \\ 2C_6H_{12}O_6 &= 4CO_2 + 4C_2H_6O \text{ alcohol.} \\ 4C_2H_6O + O_4 &= 4H_2O + 4C_2H_4O \text{ aldehyde.} \\ 4C_2H_4O + O_4 &= 4C_2H_4O_2 \text{ acetic acid.} \\ 4C_2H_4O_2 - 2H_2O &= 2C_4H_6O_3 \text{ acetic anhydride.} \end{aligned}$$

The weight of acetic anhydride produced by 100 pounds of cane sugar is found by the following proportion:—

$$342 : 100 = 204 : x \therefore x = 59{\cdot}649.$$

As the vinegar contains 4·6 per cent. of acetic anhydride, it follows that 59·649 pounds should be contained in 1296·717 pounds of vinegar, thus:

$$4{\cdot}6 : 59{\cdot}649 = 100 : x \therefore x = 1296{\cdot}717.$$

The weight of one gallon of water being 10 pounds, 1 gallon of vinegar having a sp. gr. of 1·017 weighs 10·17 pounds; therefore, the measurement of 1296·717 pounds is obtained by the following proportion:—

$$10{\cdot}17 : 1296{\cdot}717 = 1 : x \therefore x = 127{\cdot}504.$$

VI. Mucous Fermentation.—The following is the decomposition which takes place when cane sugar undergoes mucous fermentation:—

$$25C_{12}H_{22}O_{11} + 13H_2O = 12C_{12}H_{20}O_{10} + 24C_6H_{14}O_6 + 12CO_2;$$

the products being a peculiar gum, mannite, and carbonic anhydride.

VII. Sugar of Milk.—When milk turns sour by exposure to the air, the lactin or sugar of milk is converted into lactic acid, thus:

$$C_{12}H_{24}O_{12} = 2C_6H_{12}O_6.$$

VIII. Benzoic Acid.—The preparation of benzoic acid by the action of benzoyl chloride on sodium benzoate may be represented by the following equations:—

$$NaC_7H_5O_2 + C_7H_5OCl = NaCl + C_{14}H_{10}O_3.$$

The benzoic anhydride produced as above is converted by the action of water into benzoic acid, thus:—

$$C_{14}H_{10}O_3 + H_2O = 2C_7H_6O_2.$$

The action of phosphorus pentachloride on sodium benzoate is thus represented:—

$$6NaC_7H_5O_2 + PCl_5 = 3NaC_7H_5O_2 + 3C_7H_5OCl + NaPO_3 + 2NaCl.$$

The decomposition which is represented in the first equation takes place between the sodium benzoate and benzoyl chloride thus produced.

IX. Organic Acid.—The name of this substance is benzoic acid; the formula $C_7H_6O_2$ is obtained as follows:—

$$\begin{aligned} C \quad 68{\cdot}85 \div 12 &= 5{\cdot}74; \\ H \quad 4{\cdot}92 \div 1 &= 4{\cdot}92; \\ O \quad 26{\cdot}23 \div 16 &= 1{\cdot}64. \end{aligned}$$

Taking the oxygen as unity, the proportion of hydrogen is $\frac{4{\cdot}92}{1{\cdot}64} = 3$, and the proportion of carbon $\frac{5{\cdot}74}{1{\cdot}64} = 3{\cdot}5$. By doubling these numbers to remove the fraction, we get the above formula.

When this substance is boiled with fuming nitric acid, nitrobenzoic acid is produced, thus:

$$C_7H_6O_2 + HNO_3 = C_7H_5(NO_2)O_2 + H_2O.$$

By the prolonged action of the fuming nitric acid, the nitrobenzoic acid is converted into dinitrobenzoic acid, thus:

$$C_7H_5(NO_2)O_2 + HNO_3 = C_7H_4(NO_2)_2O_2 + H_2O.$$

X. Oxygen.—The quantity of mercuric oxide required would cost 12·767 shillings, and the potassium chlorate would cost ·804 of a shilling. The molecular weight of mercuric oxide HgO, is 216, and this weight in grammes will yield 11·19 litres of oxygen. The weight required for the production of 100 litres of oxygen is ascertained as follows:—

$$11{\cdot}19 : 100 = 216 : x \therefore x = 1930{\cdot}295.$$

As 1 pound, or 453·59 grammes of the oxide cost three shillings, the cost of 1930·295 grammes is found by the following proportion:—

$$453{\cdot}59 : 1930{\cdot}295 = 3 : x \therefore x = 12{\cdot}767.$$

The molecular weight of potassium chlorate, $KClO_3$, being 122·5, this weight in grammes yields 33·57 litres of oxygen.

The following proportion gives the quantity required to produce 100 litres:—

$$33{\cdot}57 : 100 = 122{\cdot}5 : x \therefore x = 364{\cdot}909.$$

To find the cost of 364·909 grammes, the cost of 1 pound, or 453·59 grammes being one shilling, we have the proportion—

$$453{\cdot}59 : 364{\cdot}909 = 1 : x \therefore x = {\cdot}804.$$

PRIZES.

The First Prize for solutions of problems printed in our October number has been awarded to

Alexander Fraser, 50, Lord-street, Liverpool,

whose name has frequently occupied a high place in the list of competitors.

The Second Prize has been awarded to

J. D. D. Thomas, 2, Ashley Buildings, Bristol,

the student who was third in order of merit last month.

Marks awarded for Answers.

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	E.	Total.
A. Fraser (1*st pr.*) ..	6	5	8	4	10	5	4	4	4	8	7	65
J. D. D. Thomas(2*nd*)	6	5	8	4	10	3	4	4	5	8	7	64
J. A. Kendall ..	8	5	8	4	10	0	4	4	5	8	7	63
T. T.	6	5	8	4	10	5	3	4	4	7	5	61
T. Wilson	4	5	8	4	9	5	4	2	4	6	7	58
A. E. I.	5	5	8	4	2	5	4	3	4	7	7	54
N. Coaker	4	0	8	2	10	2	4	4	4	8	7	53
A. P. S.	5	5	8	2	10	4	—	4	2	5	6	51
H. J. Jackson ..	1	5	7	4	0	5	4	6	1	6	5	44
Non Nobis	5	5	7	1	2	4	4	2	2	7	3	42
J. W.	6	5	—	4	2	5	0	2	2	7	6	39
J. S. Ward	0	3	0	2	9	5	4	2	2	6	5	38
J. Paulin	6	0	0	4	0	1	3	—	—	6	5	25
J. H. Watson ..	0	0	0	4	2	3	0	6	2	3	4	24

TO CORRESPONDENTS.

*** All questions forwarded to us for publication in this "Corner for Students" should be accompanied by the answers which the propounders believe to be correct. Communications should include the names and addresses of the writers; those which reach us after the first day of the month will be disregarded.

J. A. Kendall.—VI. Lactic acid is not a product of *mucous* fermentation. You entirely overlook the peculiar gum produced.

A. E. I.—V. In solving this problem, you based your calculation on the quantity of alcohol produced, mistaking it for acetic acid, although your reactions were quite correct.

N. Coaker.—II. You overlook the 87 mm. of mercury in the gas vessel. The pressure to which the gas is subject at the time of measurement is not that indicated by the barometer, because a portion of this pressure 87 mm.) is counterbalanced by the column of mercury in the gas-vessel.

A. P. S.—IV. You do not show how the formulæ is ascertained. The ame remark applies to your answer to Question IX.

H. J. Jackson.—V. You misunderstand the meaning of the word *loss* in his question. The conversion of glucose into alcohol is necessarily ttended with the production of carbonic anhydride.

Non Nobis.—IV. You give the rational formula instead of the empirical. V. See *A. E. I.*: you have fallen into the same error.

J. W.—V. You mistake the anhydrous acetic acid or acetic anhydride for acetic acid. IX. Reaction quite impossible.

J. S. Ward.—I. The volume of 17 grammes of ammonia is 22·38 litres, not 12·996, however you obtained this measurement. II. We require the fractions of numerical results expressed in three decimal places. III. Your formulæ intended for cupric nitrate and cuprous iodide represent unknown compounds. IV. and IX. You do not show how the formulæ are ascertained. X. The reduction of the grammes to pounds is quite unnecessary; according to the question the answer should be in shillings.

J. Paulin.—II. See *N. Coaker* under this head. III. The equation representing the precipitation of metallic copper and iodine at the same time is quite incorrect. V. Your solution to this problem is based on the curious assumption that the vinegar contains 46 per cent. of cane sugar.

J. H. Watson.—I. Your answer to this question is strangely incorrect. In the first place, you overlook the fact that ammonia occupies only half the volume of its constituents in the uncombined state. In the next place, in stating the volumes of hydrogen and nitrogen, you transpose the names of the gases. Then, although your statements in reference to the constitution of water are correct, you state that 104·53 cc. of oxygen unite with the same volume of hydrogen to form water. You may observe by the printed answer to this question, that the volume of ammonia produced by the decomposition of the ammonium chloride is easily ascertained without finding its weight. II. See *N. Coaker* under this head. VII. Sour milk would be highly poisonous according to your reaction.

W. H. Weddell.—Your questions are not sufficiently definite. Several answers might be given to the first; and according to your solution to he second, an insufficiency of hydrochloric acid would materially affect hstuelt.

Books offered as First Prizes.

Attfield's *Introduction to Pharmaceutical Chemistry.* (Van Voorst.)
Brooke's *Elements of Natural Philosophy.* (Churchill.)
onington's *Handbook of Chemical Analysis;* with Tables of Qualitative Analysis adapted to the same. (Longmans.)
Eliot and Storer's *Manual of Inorganic Chemistry.* (Van Voorst.)
Fownes's *Manual of Elementary Chemistry, Theoretical and Practical* (Churchill.)
Fresenius's *Qualitative Analysis.* (Churchill.)
Ganot and Atkinson's *Elementary Treatise on Physics.* (Longmans.)
Garrod's *Materia Medica;* with Modern Chemical Notation. (Walton.)
Noad's *Chemical Analysis, Qualitative* and *Quantitative.* (Reeve.)
Northcote and Church's *Qualitative Analysis.* (Van Voorst.)
Royle and Headland's *Materia Medica.* (Churchill.)
Williamson's *Chemistry for Students.* (Clarendon Press.)

[Any other scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.]

Books offered as Second Prizes.

Barff's *Introduction to Scientific Chemistry.* (Groombridge).
Bloxam's *Laboratory Teaching.* (Churchill.)
Church's *Laboratory Guide for Students in Agricultural Chemistry.* (Van Voorst.)
Galloway's *First Step in Chemistry.* (Churchill.)
Hofmann's *Introduction to Modern Chemistry.* (Walton.)
Huxley's *Lessons in Elementary Physiology.* (Macmillan.)
Oliver's *Lessons in Elementary Botany.* (Macmillan.)
Potts's *Elements of Euclid.* School Edition. (Longmans.)
Roscoe's *Lessons in Elementary Chemistry.* (Macmillan.)
Wurtz's *History of Chemical Theory.* Translated by Watts. (Macmillan.)
Wurtz's *Introduction to Chemical Philosophy.* Reprinted from the "Chemical News."

[Any other scientific book which is sold for about five shillings may be taken as a second prize.]

THE MONTH

LEEDS CHEMISTS' ASSOCIATION.

THE seventh annual meeting of the Association was held at the Church Institute, on October 13th, 1869, the president, Mr. R. Reynolds, in the chair.

Mr. Day was elected a member, and Messrs. Millard, Powell, and Taylor were elected associates.

The hon. secretary, Mr. Yewdall, read the annual report of the committee. This was of a satisfactory character, and announced the addition of ten new members and nine associates during the year, although some losses had been sustained by death or removal. Numerous additions to the library were reported, and this important feature in the operations of the Association had been much more extensively used by the associates, since its removal to a more central position in the town, where a comfortably warmed and lighted room is open every evening from eight to ten o'clock. During the past summer, a member of the Association, Mr. James Abbott, delivered a course of twenty-six lectures upon botany. Twenty-three tickets were issued for these lectures, which were given at seven o'clock in the morning. The Association had, as in former years, advised its associates to attend the courses of lectures on chemistry, delivered by Mr. G. Ward, F.C.S., at the Mechanics' Institute. Twenty-five students had so entered. The report recapitulated the subjects introduced at the monthly meetings of the Association.

The treasurer's account showed an income for the year of £23 15s. by ordinary subscriptions, and £8 by a special subscription in aid of the library. The following were some items of expenditure, viz.: rent, £9 13s. 10d.; books and periodicals, £8 10s. 4d.; printing, stationery, &c., including Mr. Harvey's address, reports of meetings, rules, &c., £11 3s. 10d. The balance due to the secretary was £5 16s. The report and accounts were adopted.

The committee recommended the associates desirous of improving their knowledge of latin, to enter the class on that subject at the Church Institute, and promised to commence a special class for reading prescriptions, whenever there was a sufficient number of applicants.

The ballot for officers for 1869-70 was then taken, with the following result:—President, Mr. William Smeeton; Treasurer, Mr. Land; Hon. Librarian, Mr. R. M. Atkinson; Hon. Curator, Mr. Payne; Hon. Secretary, Mr. E. Yewdall; Committee, Messrs. Atkinson, Horsfield, Jefferson, Reynolds, Roberts, and S. Taylor.

The president elect, Mr. W. Smeeton, having taken the chair, proceeded to give an address. He referred to the probable results of recent legislation, as the topic which must for some time have the chief interest at all gatherings of chemists. The position of Leeds in the educational statistics, published by Mr. Schacht, was a subject for congratulation, and it behoved assistants, who now have these opportunities for improvement to use them, lest by removal to another town, possibly accompanied by longer hours of business, they would find themselves less favourably situated. Surely there was no hardship in the compulsory education which now faced the chemist's assistant, and if this led him to habits of reading and scientific research, the result would be a wealth of pleasure of which nothing could deprive him, and which would richly compensate for any self-denial involved. Moreover, such cultivation of the mind was required by everyone of them as a safeguard against the narrowing influences of mere buying and selling, for when the mind was left to these alone, it lost many of its better qualities. It was possible to appreciate the advantages of knowledge, without forgetting purely material considerations. Admitting the fact that our business was an ill-paid one, we had the right to expect that an improvement was setting in both for master and man. For the latter, there was already a change in the right direction, since salaries had unquestionably advanced, and as compared with twenty years since, to a very great extent. Some assistants had complained that employers did not recognize the superior value of their superior education. For himself, he could answer that in the selection of assistants, he was much influenced by the consideration, that those who had passed an examination and received a certificate of a competent knowledge of their duties, were the most likely to prove valuable assistants.

Mr. Smeeton spoke of the agreement as to prices of medicines, adopted in Edinburgh and other places, and expressed the opinion that a similar arrangement could be carried out in Leeds.

The cordial thanks of the meeting were voted to the president for his address.

MANCHESTER CHEMISTS' AND DRUGGISTS' ASSOCIATION.

The first monthly meeting of the session was held in the Memorial Hall, Albert-square, on Friday evening, November 5th, Mr. Councillor Brown, Vice-President, in the chair. One new member and two associates having been elected,

Mr. Somers, Professor of Materia Medica at the Royal School of Medicine, delivered a very interesting lecture on "Baths and Bathing in Ancient and Modern Times." He described the luxurious and costly public baths of ancient Rome, Alexandria, etc., and contrasted them with the accommodation of the present day. The inhabitants of Christian countries had taken the advice given by Hamlet to the Queen, and "assumed a virtue though they had it not," in personal cleanliness; they were far behind the Turks and Hindoos. The present water supply of Manchester was about thirty gallons per head per day, and of this a very large proportion was used in manufacturing processes; that of ancient Rome, with a larger population and no manufactories, was 320 gallons. The lecturer showed by physiological arguments and statistics the immense importance of the subject.

A vote of thanks to Mr. Somers, proposed by Mr. Slugg and seconded by Mr. Hampson, was carried with acclamation.

It was announced that the next meeting would be held on Friday, December 3rd, at 3 p.m., in the Memorial Hall. The Paper would be "On the Condition and Prospects of Pharmacy in Relation to the Medical Profession," by Mr. Hampson.

THE DRUGGIST'S ACCOUNT AND THE BOARD OF GUARDIANS.

At the meeting of the Fulham Board of Guardians, held on October 28th, a warm discussion took place as regards the druggist's account with the Union, and the quality of the goods he supplied. Mr. Smith, druggist, of the Broadway (the contractor in question), attended before the Board, and complained of statements that had appeared in the papers, to the effect that the Board had taken exception to the prices he charged, which, it had been stated, were on an exorbitant scale. He (Mr. Smith) took great umbrage at that statement, and wished to explain that he always selected the very best goods, instead of cheaper ones, which he could easily have done; for example, he supplied cod-liver oil from Newfoundland at 9s., whereas it could be obtained as low as 1s. 3d. Other drugs, such as opium and iodine of potassium, were at the present time exceedingly dear. Moreover, the prices were the same as had been paid before without demur. The statement that he charged exorbitant prices had done him injury. Mr. Spaull said the history of the matter was, that a complaint had been made by one of the medical officers that the prices charged by Mr. Smith were greatly in excess of other persons who had supplied drugs, which had been proved by comparison with their invoices, and that had caused the remarks. The Chairman said he was very sorry Mr. Smith had been in any way injured in his business; that was not intended. But Mr. Smith must remember that the remarks were made openly, and he (the Chairman) could not attempt to control the press publishing them.

After a long and desultory discussion, Mr. Smith agreed to take off 10 per cent., as the price of the spirits of wine was high.

ST. JOHN'S, HOXTON.—PRESENTATION TO MR. LARGE.

On Tuesday evening the 12th ult., a most interesting gathering of the members of the congregation of Hoxton parish church, together with numerous friends, was held at the Girls' National School-room, New North-road, to present a testimonial to Mr. John Hood Large, pharmaceutical chemist, who for 10 years has filled the position of senior churchwarden of this church, an office which he still holds. The number of ladies and gentlemen who attended was the best proof of the high esteem in which Mr Large is held. The proceedings of the evening commenced with a pleasant tea party, which everyone present seemed to enjoy; after which the more formal business commenced, and the Very Rev. G. P. Pownall, Vicar of Hoxton and Rural Dean, said that many members of the congregation, desiring to express their admiration and regard for Mr. Large, had formed a committee for the purpose of raising funds to present him with a testimonial. The response was prompt and hearty, and the handsome silver tea service before them was a substantial token of the feelings of respect entertained for Mr. Large. The rev. gentleman had great pleasure in testifying to the earnest, self-denying, and efficient manner in which Mr. Large had carried out the honorary duties of his office, which was abundantly proved by his re-election, annually, for a period of 10 years. It was not intended that this testimonial should be "a notice to quit with a good character;" on the contrary, it was hoped that Mr. Large would remain in office for many years to come, and continue to enjoy the esteem of the parishioners. The rev. chairman then presented to Mr. Large, in the name of the congregation and friends, the silver tea service, which bore the following inscription: "Presented to John Hood Large, Esq., from members of the congregation of St. John's, Hoxton, and other friends, as a testimony of their high esteem, and in special appreciation of his services as Churchwarden during a period of 10 years. 1869." The secretary of the testimonial committee (Mr. Williams) then read the names of the subscribers, the number being 119.

Mr. Large, who was much moved, responded: He was, indeed, almost overcome as he listened to the number of names of friends who had subscribed to make him such a handsome present—more friends than he ever knew he had; and he was both gratified and affected at such a spontaneous expression of good feeling towards himself. As regarded the office of churchwarden, he had endeavoured to do his duty, and if the vicar and the congregation—(he always wished to feel he was chosen by the congregation, though nominated by their good vicar)—if they wished him still to continue the office he would always do his best to merit the good opinion of his fellow parishioners, and to preserve it. When he should be taken from their midst, his children would be able to look upon the service of plate they had presented to him, and rejoice in the recollection, in thinking of their father's memory, that he had been able to conciliate the feelings and win the esteem of so many valued friends and members of the congregation at Hoxton.

ALUM IN BREAD—RAID ON THE CHELTENHAM BAKERS.

The following report of some extraordinary proceedings in the Cheltenham Police-court is taken from the *Cheltenham Examiner*:—

On Monday, October 11, the police had orders to visit every baker's shop in this county, with a view to obtaining samples of bread for analysis by the county analyst, to test their freedom or otherwise from alum adulteration. In consequence of this visitation a large number of prosecutions in all parts of the county have taken place, and where adulteration with alum has been proved, fines have been imposed. In this petty sessional district, eighty-five samples, it has since appeared from the evidence of Mr. Horsley, were taken, and resulted in the laying of informations and the issue of summonses in five cases, two of which were, however, abandoned. These cases first stood for hearing on October 18, but were adjourned for the convenience of the prosecution to the 25th ult., when they were called on before the sitting magistrates: Messrs. Haines (in the chair), W. M. Tartt, E. Carrington, J. S. Surman, and S. H. Gael. Mr. Horsley, the county analyst, was in attendance, and was accommodated with a table, on which was set out a formidable array of bottles, books, bread, and chemical appliances of various kinds, requisite for the experiments which he performed during the hearing in explanation of the test by which he was able to speak to the presence or absence of alum. The Court was crowded, the inquiry naturally drawing many bakers not directly interested in the result.

Mr. Jabez Chambers, of Winchcombe-street, was the first defendant proceeded against. He was defended by Mr. F. Marshall. The information in this and the other cases charged the defendant with selling bread in which was used "a certain ingredient, to wit, alum, contrary to the statute made in the 6th and 7th years of the reign of William the Fourth."

Mr. Marshall, on the case being called on, asked the Bench to reserve their decision until all the cases were heard. His reason for this was that although five summonses had been taken out, only three of the cases were to be proceeded with, and it was important that the Bench should have the reason of this before them when deciding, for unfortunately the defendants in the other cases were not rich enough to obtain the evidence which had been taken in the cases abandoned.

The Bench intimated that they would hear all the cases before deciding on any.

Police Constable Nicholls was then called to prove the purchase of a particular loaf at Mr. Chambers's, but Mr. Marshall said he would shorten the case by admitting the identity of the loaf produced with that purchased from Mr. Chambers.

Mr. Horsley, the County Analyst, gave evidence to the effect that he had applied the usual test for the detection of alum, and found it present, though in a very small degree, in the loaf identified as Mr. Chambers's. He explained, at some length, the two tests usually applied in such cases, and by means of a diagram and a practical experiment exhibited to the magistrates the method and result of the test, in the case of both of a pure and an impure sample.

By Mr. Marshall: Could tell the probable proportion of alum to the sack, but would not do so in this case, as it was very small indeed.

Mr. Marshall: Do you not know, Mr. Horsley, that very often a "baking powder" is used by bakers in making their bread, and that that powder contains alum?

Mr. Horsley: That is so; but any such powder is open to prosecution.

Mr. Marshall: I ask you that question, though my client distinctly denies the use even of baking powder. Is there sufficient alum in this sample to do injury to anyone?—No.

You have appeared perhaps in fifty cases?—In 102.

And you have had therefore great experience. Do you not know that alum is used sometimes to improve the appearance of flour?

Mr. Gael asked what that had to do with it?

Mr. Marshall replied that in such a case as this some latitude should be allowed an advocate. The effect of such a prosecution was to do great injury to the trade of the person summoned, and already a very considerable injury had been done to Mr. Chambers, whose takings had been sensibly diminished since the summons was taken out. Mr. Chambers, while denying that he had used any alum in the bread, should be allowed to show that what alum was found was not harmful, so that the fact might go forth to the public.

Mr. Gael: Mr. Horsley has already said it was not sufficient to do harm.

Mr. Marshall said he would not pursue the cross-examination, but in opening the case for the defendant remarked on the injury which the issue of this summons had already done to Mr. Chambers, and said that though it was understood that the names of the parties summoned should not be allowed to transpire until the facts were fairly before the public, yet Mr. Chambers's name had been most prejudicially put in circulation, and the injury done to him had certainly amounted to as much as £10 a-week on his receipts. Mr. Chambers had a right to expect that he would be allowed to make known, as Mr. Horsley admitted, that the alum found in the bread was so small in quantity that it was harmless, but beyond that he had a right to show that whether the alum was there or not it was not put there by him or in the process of baking. It was not for him (Mr. Marshall) to say how the alum came into the bread, admitting it to have been there, and he wished to make reflection on no one, but he reminded the Bench that alum in large quantities had lately been found on the premises of millers. He did not suggest that it was put in the flour by them, but only inferred that it might have been introduced otherwise than in the process of manufacture into bread, to support which he would prove that the alum was not introduced while the flour was on the defendant's premises.

The defendant himself was then tendered as a witness on this point, but his evidence was inadmissible.

Enoch Giles and a man named Clare, bakers in the employ of Mr. Chambers, positively denied that in the batch from which the loaf in question was sold, or in any other bread baked on Mr. Chambers's premises during the time they had been with him, had any alum been mixed with it in the making. The millers from whom the flour was purchased were Messrs. Reynolds and Allen, of Gloucester, and Hall Brothers, the latter supplying this particular sample.

Mr. Marshall said the millers were in court anxious to make a statement to the Bench, but the magistrates declined to hear it. Mr. Marshall remarked that he could have called other evidence to the same effect as that already given, to show that alum was not used on the premises, but would content himself with the evidence already heard.

Mr. Bridgman, of Charlton Kings, and Mr. G. Musgrove, Charlton Kings, had been also summoned, but on their names being called, Mr. Supt. Day said no evidence would be offered.

Mr. C. H. Jessop, who had been instructed by the defendants, said he thought that notwithstanding the withdrawal, he ought, in justice to his clients, to be allowed to make a few remarks; and that, considering the injury which was done to a tradesman by the very making of such a charge, the defendants were entitled to some apology from the police for the charges which had been brought; the cases should not be dismissed with the simple announcement that "no evidence was offered."

Mr. Gael.—Your clients are rehabilitated by the withdrawal of the summonses.

Mr. Jessop said it did not remove the injury which had been done, as it appeared, by the wilful spreading of the fact that the summonses were out.

Mr. Gael thought that they had nothing further to do with these cases, now they were withdrawn.

Mr. Jessop thought that as solicitor for two old tradesmen who had been thus wronged, some latitude ought to have been allowed him, and that he was entitled to some explanation of the circumstances under which the informations were laid and the summonses taken out, for of course there must have been some ground for the steps taken by the police.

Mr. Horsely was understood to explain that at the time the summons was issued he had not had the opportunity of testing the bread.

Mr. Gael again said the Bench had nothing to do with this.

Mr. Jessop repeated that he ought to have been allowed every opportunity by the Bench. Apart from other facts, he believed that if the cases had not been withdrawn he should have shown, if necessary, from Mr. Horsley's own writings, that the test which he had applied in this case was quite unreliable, and that the only reliable test was the one which he had not adopted, and which took longer time than he had devoted to it.

Mr. Horsley rose to explain, and had just stated that Mr. Jessop was quite wrong, when Mr. Gael again interrupted by saying the Bench had nothing to do with it, and no further argument was allowed.

Mr. John Morgan, of Victoria-street, Fairview, was the next defendant, Mr. Marshall again appearing for the defence. The identity of the loaf tested was admitted, and Mr. Horsley deposed to the presence of alum in a more appreciable quantity than in the previous cases.

Mr. Marshall (to Mr. Horsley)—How many samples did you test in Cheltenham?

Mr. Horsley—Eighty-five.

Mr. Marshall—And you found alum in five?

Mr. Horsley—No; and I think you gentlemen are perverting my facts, and—

Mr. Marshall—Really I must ask you to remember that you are a witness, and not an advocate. I don't think you have any reason to complain of me at least.

Mr. Horsley—Well, you ask an impertinent question.

Mr. Marshall—I was not aware of it; I should be sorry to be disrespectful. (To the Bench) Mr. Horsley accuses me of "perverting his facts" and impertinence.

Mr. Tartt—Oh no; Mr. Horsley has misunderstood; you have conducted your case very properly.

In reply to other questions, Mr. Horsley said he had found alum in only three instances; he at first thought it was in five, but the informations, which had to be laid within 48 hours, were taken on the supposition that it was present.

Mr. Marshall thought these matters should scarcely be those of supposition.

Mr. Jessop, interposing, complained that in the cases in which he had been instructed not only were the informations laid, but the summonses taken out, after ample time had been taken for the verification of the supposition. He thought much more care should be exercised in such enquiries.

Mr. Gael, interrupting Mr. Jessop, told him the Bench could not allow the matter to be re-opened, and on Mr. Jessop again attempting to speak said, anything he might say would have no effect on the Bench.

Mr. Horsley (in reply to further questions by Mr. Marshall,) said the test he had applied was infallible if time were given it, and to the best of his belief he had never stated to the contrary in any of his writings.

The defendant's son having been called to prove that no alum was used in the bread, this case also closed.

William Wasley, baker, of Stoke Orchard, was the next defendant. Mr. Marshall again appeared for the defence.

The tested samples in this case showed the presence of alum in much larger proportion than in either of the other cases, and this case differed from the others inasmuch as the defendant's wife, when spoken to on the subject, at once admitted the use of a composition known as "hards" in the bread, and it was shown by Mr. Horsley that this compound, which had been much used by bakers, was composed of equal parts of alum and salt. The proportion of alum to the sack in the samples tested was about 6 oz.

Mr. Marshall, these being the whole of the cases, briefly addressed the Bench. In reference to Wasley's case, he remarked that the defendant had evidently erred through ignorance and believing that there was nothing illegal in the use of a mixture which had been long in use in the trade, and which had been sold to him by travellers. That a countryman should unwittingly offend against an old Act of Parliament like this was not to be wondered at; for he (Mr. Marshall) believed that there were very few even of those who had a better opportunity of becoming acquainted with the law, who did not offend against it in one respect or another. For instance, there was one provision of the Act that any baker using potatoe in the manufacture of bread, and not marking each loaf with the Roman letter "M," was liable to a fine of 10s. 6d. each loaf, and he asked how many instances there were in which that fine would not be incurred. Having remarked on the almost imperceptible trace of alum in Chambers's bread as spoken to by Mr. Horsley, and the positiveness with which both Mr. Chambers and Mr. Morgan had rebutted the insinuation that they had used alum, he acknowledged that Mr. Horsley had said that his test was infallible; but he (Mr. Marshall) asked the Bench, as men of common sense, whether any test could be infallible. If the Bench could not dismiss the cases altogether, as he thought they might in Chambers's instance, he had no doubt that they would inflict the lowest penalty in their power.

The Magistrates inflicted in each of the three cases the mitigated fine of £5.

Mr. Chambers declared that he would never pay the money, as he had been wrongfully accused, but Mr. Marshall a minute or two later stated that a gentleman in Court who sympathised with Mr. Chambers under the circumstances, had kindly paid the fine himself.

It should be stated that the millers by whom Chambers's flour was supplied were in Court, but the bench declined to hear them in the case.

At the close of the case Mr. Marshall strongly pressed for a slice off the loaf bought at Mr. Chambers's, but the application was refused by the Bench.

The following letters, addressed to the editor of the *Cheltenham Examiner*, throw additional light upon Mr. Horsley's proceedings:—

Sir,—I shall be obliged by your allowing me space in your next publication for the following remarks:—On Monday, the 18th instant, I was instructed by two respectable tradesmen at Charlton to attend at the Magistrates' Office and defend them from the serious charge of having adulterated their bread with alum. I attended accordingly, but the cases were adjourned, on the application of Mr. Superintendent Day, until the following Monday. On Saturday last an intimation was conveyed to me that there was no evidence to support the charges brought against my clients, and on the cases being called, this morning, Mr. Day announced to the Court that no evidence would be given against Mr. Bridgman or Mr. Musgrove. Considering that the charges which had been so recklessly brought against my clients (who have both carried on business in Charlton for a number of years, and have hitherto borne irreproachable characters) had become publicly known, and had already inflicted considerable injury upon them, I asked the indulgence of the Bench to be allowed to make remarks in vindication of my clients' character, which had been so unfairly assailed; but I was told that the cases having been withdrawn I could not be heard, one magistrate, whom I never recollect to have given us the benefit of his legal acumen on any previous occasion, curtly informing me that anything I might say would not be listened to. I did think, in common with many others, that these unfounded charges having been made public, to the very serious detriment of two respectable tradesmen, a little licence would have been accorded to me on this occasion; but as the magistrates thought otherwise, I at once bowed to their decision, and waited patiently, hoping that Mr. Day, who had himself laid the information, would express his regret at having from mistaken instructions or otherwise been led into the error of libelling two respectable tradesmen. No explanation or expression of regret was, however, vouchsafed, and my clients, left without redress, can only appeal through the medium of the local press for sympathy. If the cases had been gone into I was prepared to contest the reliability of the tests used by Mr. Horsley for detection of the alum in bread. The "logwood test," which was the one applied by him on this occasion, is unreliable. To quote from the letter of an eminent analytical chemist, which is now before me:—"I have no confidence in this test, as I believe that when applied to bread it sometimes points to the presence of alum when no alum whatever has been added to the bread The only trustworthy process is that of burning the bread down to ash, and examining the ash for the constituents of alum." Mr. Horsley, in articles published by him, and which appeared in the *Chemical News* of December, 1861, and in June, 1863, clearly endorses this view; and to quote his own language, states: "That nothing short of incineration and subsequent treatment with an acid and tannin will enable us to extract pure alumina." If that be his opinion, why in the name of common justice was not this the test applied in these cases, which were proved solely by his unsupported evidence to-day? One other complaint I have to make, and it is this—When the adjournment was asked for on Monday, the 18th inst., it was understood that the names of the parties charged should not be mentioned until they had had an opportunity of refuting the accusation at the proceedings to-day. How is it that the issue of these summonses had become a common topic of conversation in Charlton, and representations had actually been made to my client's customers, with a view to obtain their custom for another tradesman in the place, who it was suggested was the only baker who sold pure bread? Surely, ordinary caution was not exhibited by the police themselves, or this report could not have obtained publicity. I am sorry, at any time, to find fault with the police, but in this instance I am constrained to do so. Summonses are issued against two respectable men merely on the "supposition" that alum has been used; alum is subsequently admitted *not* to have been used, and yet tradesmen who have had the "supposition" rankling against them for ten days in the public mind, are coolly told that the magistrates cannot hear their statement, and that they must be satisfied with the tardy admission of the police that no evidence can be offered. This is not the way in which an Act of Parliament, such as the 6th and 7th William IV., ought to be administered, or every tradesman is open to a libel for which there is no remedy. Proof, not "supposition," should alone warrant proceedings.

I am, yours obediently,

CHAS. H. JESSOP.

October 25th, 1869.

Sir,—Will you allow me, through the medium of your valuable paper, to say (in spite of Mr. Horsley's test and the fine imposed by the magistrates) that I defy the world to prove that there was one atom of alum used in the manufacture of my bread? I never in my life used or allowed it to be used.

The test applied by Mr. Horsely was one allowed by himself to be uncertain; the proper way being to burn the bread and analyse the ashes. But he says there was not time to test it that way. So because there was not time to apply a proper test, I am to be found guilty by an improper and fallible test. Why, I would ask, is so much attempted in one day? Would it not be more just to test a half-a-dozen samples properly, than to hurry it over by wholesale, improperly?

My solicitor asked for a slice from the loaf, as I intended to send it to Dr. Hill, the analyst, of Birmingham, to be tested by him, but it was refused. I applied again this morning, but was told it was destroyed. Surely, justice in my case was blind with both eyes.

I am, Sir, yours respectfully,

J. CHAMBERS.

66, Winchcomb-street, Oct. 26th.

BANKRUPTCY.

IN RE G. SPECHLEY, CHEMIST, NEWARK.

This bankrupt came up for his last examination and discharge, before Mr. Registrar Tudor, at Nottingham, on the 27th ult. Mr. Belk appeared for the assignee. There was no opposition, and the bankrupt received his order of discharge.

IN RE AUGUSTINE ALLEN, CHEMIST AND DRUGGIST, BARNSLEY.

On the 16th ult., proceedings in bankruptcy in this matter were commenced in York Castle before the Registrar (J. A. Yorke, Esq.). The insolvent stated that he was arrested on the 29th September at the suit of his detaining creditors, Messrs. Edward Harriott Hyde, Harry Rawson, George Stephen Woolley, and Herman Woolley, wholesale druggists, Manchester, to whom he was indebted, with costs of £30 7s. 1d., for drugs supplied to him by that firm. The total amount his indebtedness was £720, and including stock, furniture, fixtures, and book debts, his assets would be about £290. Insolvent had been in business six years as chemist and druggist, and had never followed any other trade. He was adjudicated a bankrupt, and his case will be heard at the Leeds Court of Bankruptcy.

LAW AND POLICE.

At the Retford Petty Sessions, on the 15th ult., a respectable-looking boy, named George Smith, was charged with stealing 7s. 4d. and five bundles of cheroots, of the value of 5s., the property of Mr. Alfred Taylor Hornby, chemist and druggist, of Tuxford, on the 13th ult. As the prisoner was over 13 years of age the Bench could not deal with him under the Juvenile Offenders' Act, and after some deliberation he was ordered to be whipped and handed over to his father.

At the Manchester County Police Court, on the 6th inst., a man named Samuel Nuttall was committed for trial for stealing a quantity of indigo and other colours, the property of his employers, Messrs. Mellard and Coward, manufacturers, of Heaton Mersey.

At the Leeds Town Hall, on the 3rd inst., a man named Reuben Cromack was committed for trial for embezzling moneys, the property of his employer, Mr. William Clark, manufacturing chemist, of Beeston Hill.

At the Liverpool Police Court, on the 15th ult., Mr. Francis James Eaton, the occupier of the warehouse, No. 7, Back Goree, appeared before the sitting magistrates (Messrs. Anderson and Wordsworth), to answer an information laid against him under the 13th section of the Local Fire Prevention Act, for having received into his warehouse eight casks of wood oil, the said warehouse not being fireproof, whereby he had rendered himself liable to a penalty not exceeding £10. The police authorities stated that an officer went to the warehouse and found the oil running through the floor in three different places, and gas was burning beneath in the warehouse where the oil was dropping through. The officer went into the room above where he found eight casks of oil, some of which were leaking, and he was told at the defendant's office that the casks contained wood oil. Above the room where the oil was stored there was grain. The warehouse was certified, but not fireproof. Mr. Eaton said the casks did not contain oil at all; it was East India balsam of copaiba. He stated that if the gentleman who rented the lower warehouse had informed him that he was committing a nuisance, he would have removed the copaiba at once. Knowing that it was a drug, and also that the Maranham merchants stored the drug in certified warehouses, he did not see that he had infringed the law. If any damage had been committed, or inconvenience occurred, and he had received intimation of the fact, he would gladly have removed the copaiba away. On behalf of the defendant, Mr. Hawkins stated that he had examined samples taken from the casks. One sample was the true balsam from Maranham, the other from the East Indies. It would require a wick to take fire. The magistrates said the explanation was satisfactory, and the information would be dismissed; but they would suggest to the defendant that the casks should be removed. Mr. Eaton stated that the casks should be removed as early as possible.

POISONING CASES.

POISONING BY VERMIN POWDERS.

A YOUNG woman, named Emma Orddidge, residing at Wednesbury, has destroyed herself by taking two pennyworth of Barber's Magic Vermin Killer. At the inquest on the body of deceased, on the 8th inst., Mr. George Morris, the chemist and druggist from whom the vermin killer was purchased, stated that she had been a customer at his shop for three years, and that the sale of the vermin killer was registered, and that she put her cross to his book. Half a twopenny packet of the vermin killer would destroy life.

A woman, named Mary Calladine, has been apprehended at Heanor, Derbyshire, on the charge of attempting to poison her husband. It appears she purchased a packet of Thorley's Vermin Killer, at the shop of Mr. Simpson, druggist, Heanor, and administered some of it in treacle to her husband, telling him at the time that it was medicine which had been ordered for him by the doctor. She has been committed for trial.

FROM LAUDANUM.

On the 14th ult., an inquest was held at Henley-on-Thames, before the borough coroner, Mr. William Simmons, on the body of a pensioner named John Barry, who had been found dead in his bed. Deceased had served in India, and had been an inmate of the hospital for some time. On leaving the institution he had a prescription given him which he got made up at a chemist's shop, having borrowed money for so doing of his landlady, and at the same time obtained half-an-ounce of laudanum, ostensibly to use as a lotion for his knee. Not appearing on the following morning, his bedroom was entered, when he was found quite dead. Two bottles were found on his table, both empty; the one had contained the medicine and the other the poison. It was bèlidved that he had taken the laudanum whilst in a semi-conscious state, and a verdict was given in accordance with this evidence.

ACCIDENTS.

An accident occurred at the Netham Chemical Works, near Bristol. The proprietors of the works are erecting a very high chimney for the purpose of carrying off the gases evolved in the course of the manufactures carried on in the premises. The stack, although unfinished, has been built up 130 feet. Inside the stack are numerous cross-pieces for the purpose of strengthening the structure. The poor fellow was working on the scaffolding at the top of the stack, when missing his footing he fell headlong down the chimney, and in his descent struck the cross-pieces in the chimney with terrific violence. He was picked up an unrecognizable mass.

A fire broke out on the 4th inst. on the premises of Mr. A. Milner, manufacturing chemist, Mill-street, Bradford. In about two hours the flames were subdued, but not before serious damage had been done.

On the 5th inst., as Mr. Huskinson, druggist, of Manor-road, Nottingham, was mixing some chemicals in his laboratory, they suddenly exploded. Damage to the building was but slight, but the operator's hands were sadly burnt.

On the 28th, a distressing accident occurred at West Hartlepool. A little boy named Gibbon, being left alone in an upstairs room in the house where his parents resided, got to a cupboard where there was a bottle of ammoniacal liquid kept for the purpose of destroying cockroaches, which had been carelessly left within reach. The poor child drank a large portion of its contents.

On the 29th ult., an inquest was held on the body of a child named Freeman, at Sheffield, the mother of which confessed that she had poisoned it with salts of lemon. Dr. Letheby had analyzed the contents of the stomach, and found in it a quantity of oxalic acid and potash. The woman is stated to be insane.

An explosion took place on the 23rd ult. at Mr. Pritchard's vitriol works, St. Philip's, Bristol. Two men, named Catley and Halliday, were engaged in looking after a large pan of liquid for making potash, when suddenly an explosion took place. The sufferers, who were severely burnt, were conveyed to the infirmary, when it was found that Halliday had been severely burnt about the face, arms, and breast. The injuries of his companion were not so serious.

GOSSIP.

The annual dinner of the students of the Manchester Royal School of Medicine took place on the 29th ult., at the Albion Hotel. Mr. A. Somers officiated as chairman, ably assisted by Mr. S. M. Bradley as vice-president.

The Hospital Sunday at Birmingham has produced in collections the handsome sum of £3,900 for the Queen's Hospital, and it is anticipated that, when all the returns are sent in, it will be above £4,000.

Amongst the candidates at the Pharmaceutical Society's meeting on the 15th ult., Charles Laycock, assistant to Mr. W. V. Radley, chemist, Sheffield, passed his examination, and was duly registered a chemist and druggist, according to the new Pharmacy Act.

On the 16th ult., the operation of lithotomy was successfully performed on a little boy four-and-a-half years of age, by Mr. Pope, surgeon, of Wolverhampton. The two stones were not loose or unattached in the bladder, as is frequently the case, and, therefore, presented an unusual amount of difficulty. The stones weighed abeut an ounce and a drachm respectively.

Trade Memoranda.

We understand that the London and Devon Biscuit Company, whose prospectus appeared in our last issue, have closed their share list, and are now busily preparing the establishment of a London depôt. The biscuits manufactured by this company, judging from a sample sent to us, are worthy of the utmost commendation, and are in all respects equal to the best brands in the market.

A daily contemporary has thrown out a hint to inventors, which everybody might as well take advantage of. The world wants something to combine the advantages and to remove the defects of pen and ink. Blots and blotting-paper, dirty fingers and dirty desks, iron moulds on our linen, and ugly black stars on lovely lavender silk, are troubles we have submitted to long enough. True, things are better now than in the days before Gillott, when the art of mending pens was a necessary adjunct to the art of caligraphy, but we look for still more halcyon days. Till these come, Messrs. Macniven and Cameron, of Edinburgh, who have introduced the Owl, the Pickwick, and the Waverley pens, will deserve the blessing of scribes for their capital little implements, which will write on paper as rough as Fleet-street and can stay any distance.

Mr. Commissioner Bacon will be the first Chief Judge in Bankruptcy.

The following advertisement appeared in the *Daily Telegraph*:—

D. O. E.—Pray return. I am using Yeatman's Yeast Powder. My heart is light but I need my own D. O. E.

We regret to announce the death of Mr. John Bradbury Robinson, of Chesterfield, the senior partner in the firm of Robinson and Son, lint and pill-box manufacturers. Mr. Robinson died on the 25th of October last, and was 67 years of age.

The will of Mr. John Gale, of Bouverie-street (firm of Gale, Baker, and Oldfield, wholesale chemists), has just been proved under £60,000 personalty.

Mr. Edisbury, of Wrexham, the proprietor of the Wrexham Sauce, has been fortunate in obtaining a most flattering testimonial of the "delicious" flavour of the same from Messrs. J. L. Toole and Paul Bedford. In epicurean matters these gentlemen are doubtless excellent judges, and we have much pleasure in fully endorsing their approval.

We have received several trade lists during the month, a mention of which may be useful to some of our readers. The first is one from Dows, Clark, and Van Winkle, and deserves the warmest praise, as much for its clear description of the soda water machinery and ice cream apparatus, as well as for the beautiful engravings which adorn its pages. Among the testimonials published by this firm are a great number from eminent chemists in London and the provinces. A. Nelson and Co., of Ryder-street, St. James's, have issued a very complete and well illustrated price list of homœopathic medicines, counter cases, and small and large homœopathic medicine chests. A useful order-sheet accompanies this book. Mr. Forrest, of Worksop, sends us a descriptive and illustrated pamphlet of his counter apparatus for measuring oils, etc., which has been described in this journal.

GAZETTE.

BANKRUPTS.

Allen, A., Barnsley, chemist.
Clark, G. E., Nottingham, late surgical instrument maker.
Garrett, J. and T. J., Mackerfield, Lancashire, manufacturing chemists.
Purkiss, J. J., Buckingham Palace-road, perfumer.
Wood, Edwin, Aberyschan, chemist.

PARTNERSHIPS DISSOLVED.

Gambier, G. G. C., and Gould, E. G., Westbourne-place, Paddington, chemists.
Harris, W., Harris, W. J., and Goldsmith, J., Worthing, Sussex, surgeons, so far as regards W. Harris.
Nicholson, E. C., Nicholson, J., and Maull, G., Fenchurch-street, City, manufacturing chemists.
Lloyd, R., and Lloyd, T. H., Ruthin, chemists.

NOTES AND QUERIES

The following receipts, with others of the same simple character, are given in the October number of the *Pharmacist*, an admirable monthly journal published by the Chicago College of Pharmacy :—

Camphor Ice.—No. 1.—

Take of spermaceti, four ounces.
White wax (pure), eight ounces.
Oil of sweet almonds, one pint.

Melt together by a gentle heat, add, of camphor (in small pieces), four ounces; when dissolved stir until partly cold, and add essential oil of bitter almonds and expressed oil of mace, two fluid drachms, and pour into moulds.

Camphor Ice.—No. 2.—

Take of hard, clarified mutton suet, eight ounces.
Spermaceti,
Wax, of each half an ounce.
Camphor, one ounce.

Proceed as before.

Lime Juice and Glycerine.—

Take of olive oil (best),
Lime water, of each four ounces.
Oil of lemon, one fluid drachm.

Mix.

Cephalic Snuff (Schneeberger).—

Take of white hellebore, in fine powder, one ounce.
Orris root, in fine powder,
Bayberry bark, „ of each half an ounce.
Starch, „ six ounces.
Oil cloves, „ ten drops.

Mix.

The following Notes and Receipts, chiefly derived from foreign sources, are printed in the *Canadian Pharmaceutical Journal* for October :—

Mucilage for Labels.—Macerate five parts of good glue in eighteen to twenty parts of water for a day, and to the liquid add nine parts of rock candy and three parts of gum arabic. The mixture can be brushed upon paper while luke warm; it keeps well, does not stick together, and when moistened adheres firmly to bottles.—For the labels of soda or seltzer water bottles, it is well to prepare a paste of good rye flour and glue, to which linseed oil varnish and turpentine have been added in the proportion of half an ounce of each to the pound. Labels prepared in the latter way do not fall off in damp cellars.

Shoe Soles in Ill-smelling Feet.—The diffusion of the abominable odour in ill-smelling feet may be effectually prevented by placing a sole containing a layer of powdered charcoal either between the foot and the stocking, or between the latter and the shoe. A paste consisting of—

Powdered charcoal	.. ..	40 parts.
Water	.. ..	40 „
Gum	.. ..	15 „

should be thickly spread over a piece of filtering-paper, flannel, felt, etc., stretched over a board or pasteboard. The paste is then covered over another piece of paper, which is smoothed over with the hand so as to remove all asperities. When quite dry, the sole may be cut out of the required size. Being cheaply made, they may be changed once or twice a day.

Colouring for Essences and Oils.—For lemon, curcuma is generally employed. Peppermint: santalum or curcuma, or a mixture of both; a tincture of the leaves of the herb is, however, best and most appropriate. In the absence of this, a colouring made by macerating common grass, slightly bruised in alcohol, answers a good purpose; the leaves of parsley are sometimes used in this manner. For cinnamon, use santalum; for cloves the same, or preferably, caramel, which imparts a browner colour. Raspberries and strawberry: tincture of cudbear or magenta. Pineapple and pear: curcuma. A yellow colour, resembling that of olive oil, is sometimes given to a mixture of castor oil and spirit by an alcoholic tincture of annatto. Rose hair oil is made with a solution in oil of the colouring matter of anchusa. This is much to be preferred to magenta, which is sometimes used, as the latter colour is liable to attach itself to the hands.

Alkanin Test-Paper.—Professor Bœttger states that M. Hirzel, at Leipzig, prepares alkanin, the extract of the alkannet root, *anchusa tinctoria*, on the large scale. This extract is dissolved in absolute alcohol; and with this solution strips of Swedish filtering-paper are saturated and made use of, after drying, for detecting even the very faintest traces of ammonia. The alcholic solution exhibits a beautiful red colour, which, even by the ammonia present in tobacco-smoke, or in illuminating gas, is instantly converted into a beautiful blue. The alcoholic solution and test-paper have, of course, to be kept carefully excluded from all ammoniacal fumes. The red paper may be turned into blue by a very weak aqueous solution of carbonate of soda, and it then becomes an excellent test for even the faintest trace of any acid, turning red therewith at once.

Bleaching Soap.—This is a soda soap prepared according to the excellent prescription of the Prussian Pharmacopœia, which prescription has been copied in almost all other works of the kind. The soap is separated by common salt, and after this one-fourth of its weight of sulphite of soda is added, which has been previously made into a homogeneous paste by means of a little water; the soap is next dried in the usual manner. In order to apply this soap, chiefly intended for the bleaching of straw hats, but perfectly fit for application to silk and wool, it is dissolved in its own weight of cold water, and to every 2 lbs. of soap, ½ oz. of liquid ammonia is added. As soon as the mass has a gelatinous aspect, 1 part thereof is dissolved in 8 parts of warm water. The materials which it is desired to bleach are washed and scrubbed by means of a brush in this soap-sud; while yet moist, the materials are placed in acidulated water (25 parts of water and 1½ of hydrochloric acid), left in this liquid for 2 hours, and then well washed and rinsed with pure cold water, and dried. This soap is very largely and successfully used in Russia, and was first prepared in that country by Dr. Werner.

Cattle Spice.—*E. A. R.*—The composition of White's Aromatic Powder, according to Beasley, is caraway 6 oz., pimento 4 oz., ginger 2 oz., liquorice 2 oz.: the dose 6 to 8 dr. The same authority gives the following receipt for common horse spice :—Caraway, aniseed, coriander seeds, of each 16 oz., turmeric 32 oz., cumin seeds, liquorice and ginger, of each 8 oz. Mix.

K. D.—"Tomes' Treatise on Dentistry," price 12s. 6d., may be obtained from our publisher.

Vet.—Mineral naphtha is included in the Petroleum Act.

Chemicus.—See Editorial Note.

Correspondence

THE SALE OF ARSENICAL SHEEP DIPPING.

PHILLIPS *v.* LESTER.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—The remarks of Mr. W. F. Cooper, in your last issue, are as *illogical* as they are *untrue*. But for this latter fault I would have passed them over, and as he challenges me before a jury of the trade, I, in defence of my reputation, ask you to give me space in your next to rebut his malevolent assertions, and, without putting a *new face* upon facts already proved, to show the motive which prompted these proceedings.

The report in your journal, so far as the defence was concerned, was written by Mr. Cooper and his party, who, moreover, wrote as favourably (in many particulars untrue) an account as could be hastily penned for insertion in a local paper, with the view of reprinting and circulating it amongst his customers, as well as sending it for insertion to other county newspapers. This report I had occasion to contradict as being onesided and systematically untrue; and Mr. Cooper, after supporting those false statements to the utmost of his ability, and so far losing his temper as to make use of the delicate expressions "fool," "ignorance," and the like, retired from the correspondence, having learnt the practicability of the lesson, "That the credit which is got by a lie only lasts till the truth comes out."

In January I gave the defendant notice to discontinue the sale of poisons, threatening him with prosecution. He had last year sold the preparation at 1s. 2d. per packet, and Cooper told me that as soon as I gave Lester that notice he arranged to supply him at a lower rate, in order that he should undersell me. I afterwards found he was supplying it at 1s. per packet. That I was selling it at a reduced rate and was the first to reduce it, is, to say the least, an "original" and "unwarrantable lie." I have not, until the last month, sold the article under the stated price. The purchase was made with a view of proceeding on 25th May, and in June I wrote Cooper the two letters with the view of giving him opportunity of withdrawing his unqualified agent, my motive being at the same time communicated to him that it was "to protect my own trading interests." He dared me to proceed and I did so; and the most glaring spirit of his defence is "imputing vindictiveness, selfishness, and impure motives to me, and bringing forward my letters and declaring upon oath that I *wanted agency*, and that he had never supplied me with handbills and posters with my name attached as agent, although he had forwarded them to me yearly."

I had been selling his preparation many years, and have since January registered the sales. He may term my motives "selfish," if he chooses. I am not the only one who is so selfish as to do his utmost to protect his interests, more especially when opposed in an illegal manner and in the spirit exhibited by Mr. Cooper and his agent.

The truth of his remarks relative to the price he supplies Lester at, I have strong reasons to doubt; and the *discretion* he has used in the matter is certainly imperceptible.

I repeat my former assertion, that at the first hearing Mr. Cooper admitted my analysis. He did not raise a shadow of doubt upon it, and not until the adjourned hearing was the slightest objection made or the quibble raised. He stated that his preparation was "sulphide of arsenic," and in cross-examination by me said it was composed of "sulphur" and "arsenious acid." As to Professor Tuson's analysis I did not see it, and objected to the report being received, not knowing what means had been used for obtaining it. Cooper refrained from saying that the composition he sent for analysis was identical with that sold by Lester and purchased by me. I deny that my analysis (qualitative) is either incorrect or absurd; but that it is what I represent it to be, any chemist having it in stock can easily ascertain.

Mr. Cooper next asserts that "the magistrates did not express their reason for adjourning the case." How he can dare to tell so direct a falsehood I am at a loss to conceive. The bench addressed him in the words I gave in my communication to you, and the clerk particularly called his attention to it.

I fear Mr. Cooper is in far greater ignorance of the requirements of the Pharmacy Act, than he, with such effrontery, imputes to myself. He shows his in a very marked manner. He ought to know that to entitle him to retail poisons he must be *registered;* and in using the title of chemist on a poison wrapper, for the purpose of doing a trade in it, he must be *registered.* He must be entirely bereft of his senses to suppose for one moment that I consider him on a par with Dr. Alfred J. Taylor, M.D., F.R.S., Professor Brande, and others he quotes. Such a simile is perfectly ridiculous! And with what arrogance does he place himself upon an equality with men of sterling worth and ability, the comparison of whose qualifications with his own differs more widely than the superlative does from the positive degree. The community of chemists and druggists loses nothing by Mr. Cooper's nonalliance with it, neither is the science of chemistry flattered by his presumptive adherence to it. But "'Tis folly to be wise." As a M.R.C.V.S. or as a veterinary chemist I offer no objection to his title, but he must know that he cannot, even with these qualifications, dispense or sell poisons except for animals under his immediate care. (See Amended Pharmacy Act.) His *acknowledged ignorance* of the meaning of the Act will most likely betray him, and he may yet be glad to attach his name to the Register he now ridicules and looks upon with such contempt; but not, even then, until he proves his competency to be enrolled a "registered chemist."

The costs of adjournment Cooper was ordered to pay, but I am now told they were remitted.

I unhesitatingly deny the gross imputation of Mr. W. F. Cooper in alleging that any of my former assertions are untrue. I challenge him to the proof; and I have further the satisfaction of knowing that in taking these proceedings I have the direct sanction and approval of a great number of registered chemists who, at all events, give me no discredit for the action I have taken, but support my views and look forward to a successful issue.

The sophistry exhibited in the latter part of Mr. Cooper's letter is evidently allied with the general character and tone of his defence throughout this action. He evidently does not meet troubles half way, but forces his opinions (and strange ones too) upon us with an amount of assurance rarely equalled. He seems to care neither for law nor reason, and is confident of his own triumph, "*until the time when all proprietary articles are placed upon the same footing, then he will carry on his business in a more select field.*" Perhaps he will! He may yet be glad to succumb to the title of *registered chemist* and do business with *retail druggists*, but they in their turn will have the opportunity of refusing, and his business may possibly become "more select."

It is monstrous to suppose for a moment that proprietary articles are likely to be excluded from the operation of the Act; if that were the case there is not a single poison but that may be put up and sold indiscriminately as a "proprietary" article. The Pharmacy Act is sufficiently clear on this point, and its provisions should be enforced in a spirit of justice and equity, for the protection of qualified traders and the public safety.

I trust ere long the Pharmaceutical Council will take action in the matter. It is its duty to protect us, and "ours" to see that no undue restriction is imposed upon us. It behoves us, one and all, to be up and doing. The Pharmacy Act should be fairly and impartially interpreted and dealt out. The questions: "What are poisonous compounds?" and "Who shall sell them?" should be solved; and *now* is the time. Let us look to it.

Apologising for again troubling you,

I am, Sir, Your most obedient servant,

Church Stretton, JAMES PHILLIPS.

October 26, 1869.

PETROLEUM PROSECUTIONS.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—I cannot allow your report of the late Petroleum prosecution in Shrewsbury to pass entirely without remark; it is not true that I "did not appear very confident;" my confidence in my own results was perfect, and was shared, as I have been assured on the best authority, by the bench, who ultimately dismissed the case, not through any reliance placed upon the certificates produced by the defence, but because upon my own evidence the oil approached very closely to the legal standard. I was myself averse to the prosecution on the same grounds, feeling convinced that no conviction would be obtained. Nevertheless, the flashing point of the oil did undoubtedly lie below 100° F., in spite of the certificates produced by the defence, which were of course entirely of an *ex parte* character.

The utter worthlessness of such certificates as these, has been thoroughly exposed in two letters, from different hands, which have lately appeared in the *Standard*, to which the attention of all magistrates, who may have to decide cases of this kind in future, should be drawn.

I must request the favour of your insertion of this letter, as the tone of your report is calculated to do me injury.

I am, Sir,
Yours obediently,
Oct. 18, 1869. THOS. P. BLUNT.

FARADAY AND DUMAS.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—In the July number of your paper is a notice of a Faraday lecture by M. Dumas, from which I take the following paragraph:—

"After a few remarks on the nature of the individual discoveries of Faraday, he proceeded to observe that these discoveries connected themselves with four great topics—the nature of inorganic matter, and the nature of the force by which it is operated upon; the nature of organic matter, and the nature of the forces operating on this matter. These were problems which had occupied the ancient world, and particularly the Greek philosophers; and he maintained that in substance our real and ultimate knowledge was in the same state as that of the Greeks, and went no further. He went on to detail the means by which Faraday had proved the identity of forces and their relation to that of gravitation; but he affirmed that of this ultimate force we know no more than Aristotle did, and that the knowledge of it rested with One above. . . . He denied, however, that the chemist with all his endeavours had ever imitated life itself, or would ever be able to produce a living being. There must be a living seed for a living plant, and a living egg to produce a living animal. These, he said, were something beyond, far above human power, and within the power of God alone."

The foregoing embraces quite a number of very interesting and important questions, more than you will likely be inclined to spare room to be fully and satisfactorily answered in your paper. However, I hope you will allow me briefly to notice some of them. If I understand M. Dumas to mean that man cannot *originate* that power or force by which inorganic and organic matter operates, I do not object. But if he asserts that man cannot cause that power to be exhibited, or obtain a knowledge of its operations, law, and mode of action, and thus be able to apply that power for his own good or evil—or rather, make use of that power through the material with which it is connected—I must beg leave to differ, and will endeavour to show cause for doing so.

Respecting the "*four* great topics" he refers to, I would ask, Is it not the same power and force that operates on both the inorganic and organic matter (which is merely dormant in the one, and in operation in the other)? if so, it will reduce the four great topics into *two*. They will thus be materially simplified, because it can be shown that inorganic and organic matter are the same material under different conditions, these conditions being dependent upon each other though apparently different, while really they are governed by the same law and power as that called gravity, a power which is indeed universal. They may thus all be considered as merely *matter and its force*. But M. Dumas says, "Of this ultimate force we know no more than Aristotle did, and that the knowledge of it rested with One above." "And the production of living plants from the seed, and living animals from eggs, are within the power of God alone." He certainly does not mean to say that they (plants and animals) are *in all cases* produced without the will of the animal or of man in connection with that power, or that man is not permitted to know the nature and law regulating that power, which is *the agent* through which all plants and animals are produced. Man, by his experiments in arts, science, agriculture, etc., his observations and reasoning faculties on those experiments, endeavours to know of and benefit by that power. If he has thus so far failed, he need not consider it as hopeless and forbidden ground, and say it is contrary to God's will that man should know his law—his *not* knowing can be no bar to further inquiry in that direction.

The error appears to me to be in man's supposing that the seed and the egg are the *original* or *primary cause*, when in point of fact *they* are only *effects* produced from matter through the agency of that indestructible power which is inherent in all matter. I would most respectfully ask, Is it not the same power that produces the seed and the egg, that produces the plant and the animal from the seed and the egg? Although we admit that power to be of God, and to be the agent by which all things were and are created and kept in life and motion, yet he has given man capacities (if he will use them) to know and apply that power. If we confine ourselves as heretofore to the seed and the egg as *the cause* alone of reproduction (along with that power), we must certainly continue under difficulties; but by taking them *as effects*, and searching for *their cause* and the nature of the material, and its power and mode of operation producing them, we may arrive at a satisfactory conclusion as to what the nature of that power really is. The question may naturally be asked, What, then, is the nature and *modus operandi* of this power? Should it be agreeable to your readers, I will endeavour hereafter to answer this question, both by argument and illustration, or theoretically and practically.

THOS. ROD. FRASER, M.D.

Halifax, Nova Scotia.

PATENTS

[The following list has been compiled expressly for the IRONMONGER by L. de Fontainemoreau, Patent Agent, 4, South-street, Finsbury, London; 10, Rue de la Fidélité, Paris; and 3, Rue des Minimes, Brussels.]

Provisional Protection for six months has been granted for the following:—

No.

2655. H. A. Bonneville, of Paris. Improvements in electric batteries. Dated 9th September, 1869.

2667. B. Kershaw, of Warwick-place, Maida-hill, Ice Safe Manufacturer. Improvements in the construction of vessels or apparatus for preserving meat and other articles of food. Dated 11th September, 1869.

2706. E. Eskrett, Oil Mill Foreman, and H. Searle, Wood Turner, both of Kingston-upon-Hull, York. Improvements in "envelopes" or "hairs" used in extracting oil from oleaginous seeds and in oil cake making. Dated 16th September, 1869.

2746. A. V. Newton, of Chancery-lane. An improvement in the treatment of spirits or alcoholic liquids for the purification of the same and apparatus therefor, a part of which invention is also applicable to the separation of the lighter from the heavier particles of oils and other liquids. Dated 21st September, 1869.

No.

2768. W. J. Turner, Civil and Mechanical Engineer, and H. Yewdall, Stuff Finisher, both of Bradford, York. Improvements in machinery or apparatus for the manufacture of bisulphites, and in the application of the same to bleaching and preparing for dyeing or printing textile fabrics and fibres. Dated 23rd September, 1869.

2771. J. M. Spence, Manufacturing Chemist, and J. B. Spence, Merchant, both of Manchester. Improvements in the manufacture of disinfectants, applicable also to the preservation of manures. Dated 23rd September, 1869.

2782. G. L. Morton, of Grosvenor-park, Camberwell. An improved method of stoppering bottles intended to contain effervescing liquids. Dated 24th September, 1869.

2803. G. Bennie, of Kinning-park, Renfrew, Oil Engineer and Ironfounder. Improvements in distilling oils from minerals and in apparatus therefor. Dated 27th September, 1869.

2818. C. D. Abel, of Southampton-buildings, Chancery-lane. The production of a new or improved green colouring matter for dyeing and printing. Dated 28th September, 1869.

2819. J. Buchanan, of Hebburn, Durham, Chemist. Improvements in obtaining and applying a substitute for "soda crystals," "soda ash," or "refined ash." Dated 28th September, 1869.

2837. J. Anderson, of Glasgow, Starch Manufacturer. Improvements in treating and separating the constituents of maize, and in obtaining oil, starch, spirit, and other products. Dated 30th September, 1869.

2849. F. S. Banff, M.A., of 16, North Audley-street, Grosvenor-square, Chemist. Improvements in absorbing and utilizing the noxious vapours and gases arising from locomotive engine and other furnaces. Dated 1st October, 1869.

2859. A. Bodart, of Huye, Belgium, Manufacturer. An improved balance for ascertaining the specific gravity of liquids, also applicable for other purposes. Dated 2nd October, 1869.

2881. T. Atkinson, of Hull, York, Oil Miller. Improvements in machinery or apparatus for expressing oil, and for the manufacture of cake from the residue thereof. Dated 5th October, 1869.

2885. F. Hazeldine, of Lant-street, Borough. An improved corkscrew adapted for gaseous and aërated liquids. Dated 5th October, 1869.

289. E. Smethurst, of Stockport, Cheshire, Cotton Taper or Dresser. Improvements in funnels or funnel measures for the measuring and pouring of liquids into vessels. Dated 5th October, 1869.

2950. A. C. Kirk, of Glasgow, Engineer. Improvements in treating mineral oils. Dated 11th October, 1869.

Letters Patent have been issued for the following:—

956. T. E. Williams, of Newport, Monmouth, Civil Engineer. An improved method of and apparatus for distilling hydrocarbon oils. Dated 30th March, 1869.

978. R. Jones, of Botolph-lane, Merchant. Improvements in the preservation of animal and vegetable substances to be used as food. Dated 31st March, 1869.

987. E. O'Connell, of Greenwich, Kent. Improvements in apparatus for supplying nourishment to infants, invalids, and others. Dated 1st April, 1869.

1060. L. Mond, of Farnworth-within-Widnes, Lancaster, Chemist. Improvements in utilizing products arising from soda and potash waste. Dated 7th April, 1869.

1070. J. Pattinson, of Newcastle-on-Tyne, Analytical Chemist. Improvements in utilizing the ammoniacal skimmings obtained in galvanizing iron. Dated 8th April, 1869.

1101. P. Headridge, of 5, Lime-grove, Manchester. Improvements in dentistry for expanding the upper and lower maxillary. Dated 10th April, 1869.

1138. J. H. Johnson, of Lincoln's-inn-fields. A dental wash. Dated 13th April, 1869.

No.

1224. M. Henry, of Fleet-street. An improved mode of obtaining pyrophosphate of lime. Dated 21st April, 1869.

1275. O. Hengholm, of Edinburgh, Merchant. Improvements in the preserving of articles of food and in the mechanism or apparatus employed therefor or connected therewith. Dated 24th April, 1869.

1388. T. Welton, of 13, Grafton-street, Fitzroy-square, Maker of Artificial Limbs. A new method of applying oxygenated and other gas-charged charcoal for curative and other purposes. Dated 5th May, 1869.

1892. R. Olpherts, of Ardee House, Ardee, Louth, Ireland. Improvements in indigo presses and in cloths to be used therewith. Dated 19th June, 1869.

2102. W. R. Lake, of Southampton-buildings. Improvements in the manufacture of white lead. Dated 12th July, 1869.

Patents which have become void:—

2645. H. Ellis, of Bangor, North Wales. Improvements in the manufacture of compounds of silica to mineralise woven fabrics, paper, and paper pulp, to harden and preserve stone and cement, in the production of artificial stone and paint, and in the production and glazing of porcelains, and such like manufactures. Dated 29th September, 1862.

2726. J. H. Johnson, of Lincoln's Inn Fields. Improvements in the manufacture of paints or pigments. Dated 9th October, 1862.

2380. P. Brash, of Leith, Soap, Candle, and Oil Manufacturer, and W. Young, of the Oil Works, Straiton, Midlothian. Improvements in the manufacture of oil from shale and other bituminous substances. Dated 17th September, 1866.

2478. T. Amey, of Petersfield, Hampshire, Dairy Farmer. An improved process for preserving milk and apparatus connected therewith. Dated 26th September, 1866.

2496. A. V. Newton, of Chancery-lane. An improvement in the process of distilling petroleum and other oils. Dated 27th September, 1866.

2573. W. E. Hickling, of Market-street, Leicester. Improved machinery or apparatus for washing bottles. Dated 6th October, 1866.

Specifications published during the month:—

Postage 1d. extra.

1869.

315. D. Joy. Extracting oils, etc. 10d.

329. A. S. and A. R. Stocker. Caps or stoppers for feeding-bottles. 1s.

375. C. D. J. Seitz. Furnaces and pans for recovering soda from waste lyes. 10d.

445. W. Summers. Packing cases for mineral waters, etc. 10d.

469. L. N. Legras. Preserving animal and other substances. 10d.

542. J. O. C. Phillips. Artificial teeth. 6d.

563. J. Neilson and J. Marshall. Applying devices upon metallic capsules. 4d.
and other ores. 6d.

586. W. E. Newton. Oxidizing and desulphurizing iron

600. J. Townsend. Extracting and refining oils. 4d.

601. E. Falck. Apparatus for distributing liquids as spray. 4d.

618. P. S. Regnauld. Closing tin canisters, etc. 10d.

637. J. Townsend and P. Forbes. Purifying oils and fats. 4d.

641. F. A. Gatty. Obtaining the colouring matter of madder, etc. 4d.

665. W. Betts. Capsules. 4d.

720. H. W. Goldring. Manufacture of soap. 4d.

738. G. Spencer. Preserving animal and vegetable substances. 4d.

744. G. Glover. Colouring hydrocarbonaceous fluids. 4d.

747. W. Betts. Capsules. 4d.

761. E. F. R. Lucas. Manufacturing phosphate of lime and manures. 4d.

762. H. J. B. Kendall. Paint for ships' bottoms, etc. 4d.

875. A. Clark. Rubbing and mixing paints, chemicals, etc. 1s. 10d.

Varia.

An Ohio Report on Local Anæsthesia.—We extract the following from the *Western Journal of Medicine*:—"In the first place, the application of the agent is attended with most unpleasant sensations. In anæsthetising an abscess, my patients would generally kick around and screech more than if I had plunged a lancet in without any previous process. After freezing, the cutting was not felt much, of course; though, as a general thing, the patient refused utterly to tolerate the spray until the parts were in condition for a painless operation. But the tug of war comes when the tissues begin to thaw out. If you want to have a realisation of a howling dervish of Khurdistan, just anæsthetise a felon on a poor fellow's finger and wait till sensation begins to return. Did you ever, when a boy, snowball for an hour, and then stick your fingers into the blaze of a hickory fire? That's something like it. Or, in running bullets, did you ever run one into the palm of your hand? If so, you can realise the delights of local anæsthesia. I paid Mr. Wocher fourteen dollars for my instrument. It can be bought at a bargain now. A floriculturist might use it to squirt tobacco-water on his plants to kill lice, or an oculist might freeze pigs' eyes with it for dissection; but I can never have the face to ask a patient of mine to submit to its tortures again."

Poison Labels.—Sir, to make poison labels as attractive as possible, every dispenser holds as his duty. Various methods are resorted to to fulfil this end; but I think the "skull and cross-bones," and such like similar devices, might make way for more useful ornaments; viz., simple antidotes might be used in case of the accidental adminstration of the substance sold. As antidotes may be classified under a few heads, different sets of labels might be printed with the word "Poison" on each, and on their margins, antidotes, however simple or few, that might be used in case of a mistake. For instance, a bottle containing a mineral acid might have a label upon it, such as this:—

> POISON!
>
> If taken by accident, give (mixed with water) chalk, or soap, or whiting, or ceiling-scrapings.

In the country, where a long time often elapses ere a medical man sees his patient, labels of this kind might be the means of saving life; or, at least, of mitigating suffering. I enclose my card and address, and am, etc.,

E. P. P. in *Brit. Med. Journ.*

TRADE REPORT.

There are seasons of the year when, if we take our daily papers as the mirrors of human life and action, it almost appears that the everlasting tumult and discord of the world are for a little while wearied of themselves, and an oppressive lull hangs over us. Generally, it is true, when politicians cease from troubling the current of our lives for a while, there arises a succession of ghastly sensational scenes, enacted by limited liability companies, excursion railway trains, murderers, and suicides, which, if not calculated to mitigate the *ennui*, at least maintain the excitement of life. But if these fail us also, we may at least always reckon on some sort of variety being provided for us, usually harmless enough, by some one or more of the untiring class of theory-mongers. The theory-mongers are like the conies, a feeble folk; but if they happen to push forward an idea at such a moment as we have described, and can get it gravely discussed in some influential quarter for want of some better occupation, the idea may very likely float about for a long time, and take root, too, in a great many minds hitherto more or less barren. It is thus, and thus only, that we can account for the recent revival of the advocacy of Protection, and the renewed controversies in our journals on the principles of Free-trade. A year ago, with the experience of a quarter of a century before us, we should have expected as soon to read in the *Times* an article maintaining the Copernican theory of the universe, or the law of gravitation, as to find it seriously arguing for freedom of commerce. If results ever justified carefully-calculated anticipations, the soundness of our commercial policy has assuredly been amply vindicated and proved; and though we deplore as much as any men the individual calamities of some of our manufacturing districts, we cannot fail to see that even these are but correlative evidence of the more general benefits which have accrued to the nation. The modern agitators for reciprocity repudiate the profession of Protectionist opinions. This, as it seems to us, is illogical to the utmost degree. If what is understood by reciprocity could be beneficial to us in the way of trade, surely Protection to the fullest extent must be far more so. Taking the trade of the country as a whole, however, it cannot be admitted that it is in such a lamentable condition as has been represented; while, as to our future prospects, we altogether refuse to regard them as by any means cheerless. Various causes have certainly checked, for a time, that rapid development of some departments of our commerce which had been experienced; but when we look round the world and think of our vast colonies, now in their infancy, but destined to be mighty empires, and of those regions into which we have, as yet, scarcely entered, we cannot but feel convinced, that for the trade of Great Britain, there remains a future realisation of the extent of which we have not hitherto dreamed.

CHEMICALS.

The business transacted in chemicals has been extensive, and, from the circulars issued by some of the chief manufacturing firms, we gather that there is an anticipation of firmer prices ruling as the year closes. Tartaric Acid has been firm, but Citric is rather cheaper. Oxalic is selling at 7¾d. per lb. The demand for Saltpetre has again become very flat, and prices are consequently declining. Sulphur continues firm at ten guineas per roll, and £12 10s. for flour. Bleaching powder now selling at 8s. per cwt.

DRUGS.

In the drug market, Opium is by far the most vivacious article of sale. Turkey has made an advance again this month, averaging about 5s. per lb. Our last advice from Smyrna is dated October 28th. We quote the following:—"The attempt at a rise which holders made toward the end of last month proved a failure, on account of the heavy supplies that came forward during the first half of this month, and prices gradually receded. Of late, however, a most extensive demand has caused the market to rally with rapidity; and as receipts and stocks have been falling off, progress may still be made with any demand to come. The cultivation of this drug, we understand, is being very largely developed in China, and the demand for the East Indian product has therefore proportionately fallen off. So much has this been the case, indeed, that the Indian Government regards this as one of the immediate causes of the deficit in the revenue account of the last year. Since we remarked, some three or four months ago, on the extraordinary stock of Camphor which had been imported for some time previously, the price for this drug has been slowly but steadily falling. It is fully 1d. per lb. cheaper than last month. Firm rates are still realized for good qualities of Rhubarb. Alexandrian Senna has sold somewhat lower.

DRYSALTERIES.

In Drysalteries we notice chiefly a decline in Shellac and Turmeric, an active decline for Cutch, a firm tone of the market for Red Sanderwood, and a steady demand for Logwood. Linseed Oil is firm, and though for the moment the trade is quiet, prices are likely to be maintained. The sales of Olive Oils have been very scant, and only retail quantities have been disposed of. Prices have receded for Rape Oil and for Sperm; former rates, though still quoted, are not obtainable.

Monthly Price Current.

[The prices quoted in the following list are those actually obtained in Mincing-lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

CHEMICALS.	1869. May					1868. May				
ACIDS—	s.	d.	to	s.	d.	s.	d.	to	s.	d.
Acetic ....per lb.	0	4	..	0	0	0	4	..	0	0
Citric ....per lb.	2	3	..	2	3½	2	5½	..	2	6
Nitric .... ,,	0	5	..	0	5½	0	5	..	0	5½
Oxalic .... ,,	0	7½	..	0	0	0	8	..	0	0
Sulphuric ...... ,,	0	0¾	..	0	1	0	0¾	..	0	1
Tartaric crystal .. ,,	1	2	..	0	0	1	1½	..	0	0
powdered ,,	1	2½	..	0	0	1	2	..	0	0
ANTIMONY ore......per ton	280	0	..	320	0	280	0	..	300	0
crude ..per cwt	32	0	..	0	0	23	0	..	26	0
regulus.. ,,	60	0	..	0	0	48	0	..	50	0
star .... ,,	60	0	..	51	0	48	0	..	0	0
ARSENIC, lump...... ,,	16	0	..	16	6	16	0	..	16	6
powder.... ,,	7	3	..	7	6	7	6	..	8	0
BRIMSTONE, rough ..per ton	165	0	..	0	0	160	0	..	165	0
roll ....per cwt	11	0	..	0	0	11	0	..	11	6
flour.... ,,	11	0	..	0	0	14	0	..	14	6
IODINE, dry ....per oz.	0	9¼	..	0	10	0	9¾	..	0	10
IVORY BLACK, dry..per cwt.	0	0	..	0	0	0	0	..	0	0
MAGNESIA, calcined..per lb.	1	2	..	0	0	1	6	..	1	8
MERCURY........ per bottle	137	0	..	138	0	137	6	..	0	0
MINIUM, red ......per cwt.	20	9	..	21	0	20	9	..	21	0
orange .... ,,	31	6	..	32	6	31	9	..	32	6
PRECIPITATE, red ....per lb.	2	6	..	0	0	2	6	..	0	0
white .. ,,	2	5	..	0	0	2	5	..	0	0
PRUSSIAN BLUE ...... ,,	0	0	..	0	0	1	0	..	1	10
SALTS—										
Alum ....per ton	145	0	..	150	0	150	0	..	155	0
powder .... ,,	165	0	..	170	0	170	0	..	175	0
Ammonia:										
Carbonate ......per lb.	0	5¾	..	0	6	0	5¾	..	0	6
Hydrochlorate, crude, white........ per ton	480	0	..	560	0	500	0	..	510	0
British (*see* Sal Ammoniac)										
Sulphate ......per ton	350	0	..	360	0	320	0	..	335	0
Argol, Cape ......per cwt	65	0	..	78	0	67	6	..	82	6
France .... ,,	45	0	..	58	0	45	0	..	60	0
Oporto, red ,,	22	0	..	24	0	25	0	..	27	0
Sicily .... ,,	32	0	..	40	0	45	0	..	50	0
Naples, white ,,	55	0	..	65	0	55	0	..	65	0
Florence, white	0	0	..	0	0	70	0	..	75	0
,, red ,,	0	0	..	0	0	60	0	..	65	0
Bologna, white ,,	0	0	..	0	0	0	0	..	0	0
Ashes (*see* Potash and Soda)										
Bleaching powd..per cwt.	8	9	..	9	0	10	9	..	11	0
Borax, crude .... ,,	25	0	..	40	0	25	0	..	35	0
(Tincal) .. ,,	45	0	..	60	0	30	0	..	50	0
British refnd. ,,	69	0	..	70	0	60	0	..	0	0
Calomel ....per lb.	2	5	..	0	0	2	5	..	0	0
Copper:										
Sulphate ......per cwt.	23	0	..	23	6	24	0	..	25	0
Copperas, green ..per ton	52	6	..	60	0	55	0	..	60	0
CorrosiveSublimate..p.lb.	1	11	..	0	0	1	11	..	0	0
Cr. Tartar, French, p. cwt.	82	0	..	0	0	83	0	..	84	0
Venetian grey ,,	0	0	..	0	0	0	0	..	0	0
brown ,,	65	0	..	74	0	62	6	..	72	6
Epsom Salts ....per cwt.	7	6	..	8	0	8	0	..	8	6
Glauber Salts .... ,,	4	6	..	6	0	5	6	..	6	0
Lime:										
Acetate, white, per cwt.	12	6	..	23	0	12	6	..	21	6
Magnesia:										
Carbonate...... ,,	42	6	..	0	0	42	6	..	0	0
Potash:										
Bichromate ....per lb.	0	5⅛	..	0	5⅜	0	5	..	0	0
Carbonate:										
Potashes, Canada, 1st sort ......per cwt.	31	0	..	31	6	33	6	..	0	0
Pearlashes, Canada, 1st sort ......per cwt.	32	6	..	0	0	33	0	..	0	0
Chlorate ....per lb.	0	10¾	..	0	0	1	0½	..	1	1
Prussiate ...... per lb.	1	0	..	0	0	1	0	..	0	0
red .... ,,	1	9½	..	1	10	1	9½	..	1	10
Tartrate (*see* Argol and Cream of Tartar)										
Potassium:										
Chloride ......per cwt.	8	0	..	0	0	8	3	..	8	6
Iodide.......... per lb.	12	0	..	0	0	12	0	..	0	0
Quinine:										
Sulphate, British, in bottles ...... per oz.	5	9	..	0	0	4	9	..	0	0
Sulphate, French ,,	5	5	..	0	0	4	4	..	4	5
Sal Acetos ....per lb.	0	10	..	0	0	0	10½	..	0	0
Sal Ammoniac, Brit. cwt.	38	6	..	40	0	34	0	..	35	0
Saltpetre:										
Bengal, 6 per cent. or under ......per cwt.	22	6	..	23	6	22	3	..	22	6
Bengal, over 6 per cent. per cwt.	21	9	..	22	3	21	3	..	21	9
Madras........ ,,	20	0	..	21	0	19	6	..	20	6
Bomb. & Kurrachee p. ct.	0	0	to	0	0	0	0	..	0	0
European...... ,,	25	0	..	26	0	0	0	..	0	0
British, refined ,,	26	0	..	27	0	25	6	..	26	0
Soda: Bicarbonate, p.cwt.	9	9	..	0	0	11	6	..	0	0
Carbonate:										
Soda Ash....per deg.	0	1¾	..	0	0	0	1⅞	..	0	0
Soda Crystals per ton	75	0	..	77	6	87	6	..	90	0
	1869.					1868.				
Soda:	s.	d.		s.	d.	s.	d.		s.	d.
Hyposulphite..per cwt.	16	0	..	18	0	16	0	..	22	0
Nitrate .... ,,	16	6	..	17	0	15	6	..	0	0
SUGAR OF LEAD, White, cwt.	40	0	..	0	0	37	6	..	38	0
Brown .... ,,	29	0	..	30	0	26	6	..	27	0
SULPHUR (*see* Brimstone										
VERDIGRIS .... per lb.	1	0	..	1	2	0	11		1	0
VERMILION, English..per lb.	2	6	..	3	3	2	6	..	3	0
China.... ,,	3	0	..	0	0	2	7	..	2	9
DRUGS.										
ALOES, Hepatic....per cwt.	60	0	..	180	0	100	0	..	180	0
Socotrine .. ,,	100	0	..	230	0	170	0	..	300	0
Cape, good.. ,,	27	0	..	29	0	28	0	..	32	0
Inferior ,,	17	0	..	26	0	16	0	..	27	0
Barbadoes ,,	90	0	..	220	0	70	0	..	200	0
AMBERGRIS, grey........ oz.	27	6	..	30	0	30	0	..	35	0
BALSAMS—										
Canada ....per lb.	1	2	..	0	0	1	3	..	0	0
Capivi .... ,,	1	9	..	1	10	1	8	..	1	9
Peru .... ,,	11	0	..	11	6	8	0	..	0	0
Tolu .... ,,	2	2	..	2	3	2	8	..	0	0
BARKS—										
Canella alba ....per cwt.	20	0	..	34	0	30	0	..	38	0
Cascarilla........ ,,	22	0	..	34	0	23	0	..	35	0
Peru, crown & grey per lb.	0	10	..	2	3	0	9	..	1	8
Calisaya, flat ,,	3	3	..	3	7	2	6	..	2	11
quill ,,	3	0	..	3	6	2	4	..	2	8
Carthagena ,,	0	10	..	1	8	0	9	..	1	5
Pitayo .... ,,	0	6	..	1	5	0	7	..	1	6
Red .... ,,	2	0	..	7	6	1	9	..	5	6
Bucho Leaves ...... ,,	0	3½	..	0	7	0	4	..	0	9
CAMPHOR, China.. per cwt.	95	0	..	0	0	132	6	..	0	0
Japan ,,	97	6	..	0	0	132	6	..	0	0
Refin Eng. per lb.	1	4	..	0	0	1	9	..	0	0
CANTHARIDES ...... ,,	3	0	..	3	2	2	1	..	0	0
CHAMOMILE FLOWERS p. cwt	50	0	..	80	0	55	0	..	100	0
CASTOREUM .... per lb.	4	0	..	32	0	5	0	..	32	0
DRAGON'S BLOOD, reed p. ct.	100	0	..	160	0	100	0	..	200	0
lump ,,	100	0	..	200	0	100	0	..	240	0
FRUITS AND SEEDS (*see also* Seeds *and* Spices										
Anise, China Star pr cwt.	105	0	..	110	0	90	0	..	0	0
German, &c. ,,	25	0	..	38	0	32	0	..	40	0
Beans, Tonquin .. per lb.	1	0	..	1	6	1	2	..	1	6
Cardamoms, Malabar good ,,	7	8	..	8	2	8	3	..	9	0
inferior ,,	5	9	..	7	0	5	6	..	7	9
Madras ,,	4	9	..	8	2	5	6	..	9	0
Ceylon ,,	2	8	..	3	2	2	8	..	3	0
Corozo Nuts.... per cwt.	14	0	..	18	0	12	0	..	16	0
Cassia Fistula.. ,,	20	0	..	38	0	15	0	..	28	0
Castor Seeds .. ,,	10	6	..	12	0	11	0	..	12	0
Cocculus Indicus ,,	21	0	..	22	6	21	0	..	24	0
Colocynth, apple.. per lb.	0	5	..	0	9	0	6	..	0	10
Croton Seeds .. per cwt.	45	0	..	54	0	83	0	..	93	0
Cubebs .... ,,	38	0	..	42	0	40	0	..	0	0
Cummin........ ,,	85	0	..	95	0	25	0	..	40	0
Dividivi .... ,,	10	6	..	12	6	10	6	..	12	6
Fenugreek...... ,,	12	0	..	17	0	11	0	..	12	0
Guinea Grains .. ,,	36	0	..	0	0	40	0	..	0	0
Juniper Berries ,,	7	0	..	8	0	9	0	..	10	0
Myrobalans .... ,,	8	0	..	15	0	11	0	..	15	0
Nux Vomica.... ,,	12	6	..	15	6	10	0	..	12	0
Tamarinds, East India ,,	10	0	..	16	0	32	0	..	34	0
West India, new ,,	12	0	..	22	0	16	0	..	30	0
Vanilla, large .... per lb.	22	0	..	33	0	10	0	..	16	0
inferior ,,	11	0	..	20	0	4	0	..	9	0
Wormseed per cwt.	25	0	..	30	0	25	0	..	30	0
GINGER, Preserved, in bond (duty 1d. per lb.) per lb.	0	6	..	0	9	0	6	..	0	10
GUMS (*see separate list*)										
HONEY, Narbonne ,,	0	0	..	0	0	0	0	..	0	0
Cuba .... ,,	21	0	..	36	0	21	0	..	36	0
Jamaica.. ,,	28	0	..	30	0	22	0	..	30	0
IPECACUANHA .... ,,	5	6	..	5	9	5	3	..	5	7
ISINGLASS, Brazil.. ,,	2	8	..	4	8	3	2	..	4	11
Tongue sort ,,	3	2	..	5	1	4	3	..	5	9
East India ,,	2	0	..	4	2	2	3	..	4	4
West India ,,	4	0	..	4	7	4	3	..	4	9
Russ. long staple	5	0	..	8	0	5	6	..	7	0
,, leaf ,,	3	0	..	5	9	0	0	..	0	0
,, Simovia	1	6	..	2	6	1	6	..	2	6
JALAP, good ...... ,,	3	2	..	4	0	3	9	..	4	6
infer. & stems ,,	0	6	..	3	0	0	9	..	3	6
LEMON JUICE ... per degree	0	1	..	0	1⅓	0	1	..	0	1⅓
LIQUORICE, Spanish per cwt.	63	0	..	68	0	65	0	..	70	0
Italian ,,	48	0	..	65	0	50	0	..	60	0
MANNA, flaky .... per lb.	4	0	..	5	0	3	0	..	3	6
small...... ,,	2	0	..	2	6	1	6	..	1	9
MUSK.............. per oz.	16	0	..	32	0	22	0	..	36	0
OILS (*see also separate List*)										
Almond, expressed per lb.	1	3	..	0	0	1	3	..	0	0
Castor, 1st pale .... ,,	0	5	..	0	5¼	0	6	..	0	6¼
second .... ,,	0	4½	..	0	5	0	5	..	0	5½
infer. & dark ,,	0	4½	..	0	0	0	4¾	..	0	5
Bombay (in casks)	0	4¼	..	0	0	0	4½	..	0	0
Cod Liver ......per gall.	5	0	..	6	9	4	0	..	6	6
Croton............per oz.	0	3	..	0	4	0	3	..	0	4
Essential Oils:										
Almond ....per lb.	42	0	..	0	0	40	0	..	0	0
Anise-seed ...... per lb	9	3	..	0	0	9	0	..	0	0
Bay ....per cwt.	65	0	..	70	0	75	0	..	0	0
Bergamot ......per lb.	8	0	..	15	0	12	0	..	23	0
Cajeput, (in bond) per oz.	0	1¾	..	0	2	0	1¾	..	0	2
Caraway ....per lb.	5	3	..	5	9	5	0	..	6	6
Cassia .... ,,	5	6	..	5	7	5	9	..	6	0
Cinnamon ......per oz.	1	0	..	4	6	1	0	..	4	0

	1869.				1868.			
Essential Oils, *continued*:—	s.	d.	s.	d.	s.	d.	s.	d.
Cinnamon-leaf ..per oz.	0	4	0	0	0	6	0	0
Citronelle ...... ,,	0	2½	0	2¾	0	2¾	0	2⅞
fine.... ,,	0	3	0	3½	0	3¼	0	0
Clove............per lb.	2	6	0	0	2	6	0	0
Juniper .... ,,	1	9	2	0	1	9	2	0
Lavender........ ,,	3	0	4	3	2	9	3	9
Lemon.......... ,,	4	6	7	0	3	6	6	0
Lemongrass ....per oz.	0	4	0	4½	0	4½	0	5
Neroli .... ,,	0	5	0	6	0	0	0	0
Nutmeg .... ,,	0	4	0	8	0	4	0	8
Orange..........per lb.	5	0	7	0	5	0	7	0
Otto of Roses....per oz.	13	0	20	0	15	0	20	0
Peppermint:								
American ....per lb.	15	0	16	0	20	0	21	0
English ...... ,,	32	0	42	0	38	0	43	0
Rosemary ...... ,,	1	9	2	0	1	9	2	0
Sassafras .... ,,	4	0	4	6	3	6	4	0
Spearmint ...... ,,	4	0	14	0	12	0	24	0
Thyme.......... ,,	1	10	2	0	1	10	4	0
Mace, expressed .. per oz.	0	1	0	2½	0	0¾	0	2½
Opium, Turkey ...... per lb.	27	0	28	0	24	6	26	6
inferior ...... ,,	16	0	23	0	0	0	0	0
Quassia (bitter wood) per ton	160	0	180	0	170	0	200	0
Rhubarb, China, good and fine ....per lb.	4	6	8	6	5	0	9	0
Good, mid. to ord. ,,	0	9	4	3	1	0	4	6
Dutch trimmed ,,	10	0	0	0	10	0	12	0
Russian .... ,,	0	0	0	0	9	0	10	0
ROOTS—Calumba..per cwt.	31	0	48	0	24	0	40	0
China .... ,,	27	0	35	0	30	0	35	0
Galangal .... ,,	15	0	20	0	17	0	18	0
Gentian .... ,,	19	0	20	0	16	0	17	0
Hellebore ...... ,,	22	0	30	0	22	0	30	0
Orris............ ,,	38	0	44	0	38	0	42	0
Pellitory .... ,,	58	0	60	0	58	0	60	0
Pink..............per lb.	0	7	0	10	0	7	0	9
Rhatany .... ,,	0	5	0	10	0	4	0	10
Sencka............ ,,	1	6	0	0	1	6	0	0
Snake .... ,,	1	0	0	0	1	4	0	0
Saffron, Spanish .. ,,	30	0	40	0	28	0	34	6
Salep ....per cwt.	110	0	0	0	100	0	120	0
Sarsaparilla, Lima per lb.	0	6	0	7	0	0	0	0
Para.............. ,,	1	0	1	3	1	0	1	3
Honduras .... ,,	1	2	1	6	1	0	1	7
Jamaica .... ,,	1	10	2	6	1	3	1	11
Sassafras ....per cwt.	0	0	0	0	15	0	0	0
Scammony, Virgin ..per lb.	28	0	32	0	28	0	35	0
second & ordinary ,,	10	0	23	0	10	0	23	0
Senna, Bombay .... ,,	0	3½	0	6	0	3	0	5½
Tinnivelly .... ,,	0	3	1	0	0	2	0	10
Alexandria........ ,,	0	4	1	6	0	6	0	11½
Spermaceti, refined.. ,,	1	6	1	7	1	5	0	0
American .... ,,	1	6	0	0	1	4	1	5
Squill.............. ,,	0	1¼	0	2¼	0	1	0	2¼
GUMS.								
Ammoniaci drop ..per cwt.	210	0	280	0	180	0	220	0
lump .. ,,	120	0	200	0	120	0	160	0
Animi, fine washed ,,	320	0	350	0	230	0	280	0
bold scraped ,,	240	0	300	0	180	0	210	0
sorts ...... ,,	105	0	210	0	100	0	150	0
dark ...... ,,	80	0	110	0	0	0	0	0
Arabic, E. I., fine pale picked .. ,,	78	0	82	0	80	0	83	0
srts, gd. to fin ,,	65	0	77	0	60	0	71	0
garblings.. ,,	40	0	60	0	45	0	55	0
Turkey, pick. gd to fin. ,,	170	0	210	0	170	0	210	0
second & inf. ,,	90	0	160	0	85	0	160	0
in sorts .. ,,	75	0	102	0	68	0	92	0
Gedda.... ,,	38	0	45	0	48	0	53	0
Barbary, white .. ,,	82	0	85	0	70	0	77	0
brown .. ,,	70	0	79	0	70	0	80	0
Australian ...... ,,	25	0	50	0	36	0	40	0
Assafœtida, com. to gd ,,	40	0	95	0	60	0	100	0
Benjamin, 1st qual. ,,	280	0	480	0	320	0	680	0
2nd ,, ,,	140	0	220	0	140	0	240	0
3rd ,, ,,	60	0	120	0	60	0	110	0
Copal, Angola red ,,	110	0	120	0	60	0	70	0
Benguela .. ,,	100	0	110	0	72	0	87	0
Sierra Leone..per lb.	0	5	1	4	0	7	1	3
Manilla ....per cwt.	32	0	55	0	26	6	45	0
Dammar, pale .... ,,	95	0	100	0	92	6	100	0
Euphorbium ...... ,,	15	0	16	0	18	0	20	0
Galbanum .... ,,	160	0	240	0	180	0	220	0
Gamboge, pckd. pipe ,,	320	0	350	0	380	0	420	0
Guaiacum ....per lb.	0	8	1	5	0	6	0	10
Kino..............per cwt.	60	0	120	0	60	0	120	0
Kowrie, rough.... ,,	50	0	60	0	36	0	47	0
scraped .. ,,	63	0	120	0	50	0	100	0
Mastic, picked......per lb.	5	6	6	0	5	0	7	0
Myrrh, gd. & fine per cwt.	190	0	260	0	190	0	260	0
sorts......	90	0	170	0	80	0	160	0
Olibanum, p. sorts	79	0	85	0	73	0	82	0
amber & ylw.	70	0	77	0	65	0	73	0
garblings.... ,,	25	0	50	0	25	0	45	0
Senegal ....per cwt.	88	0	95	0	80	0	85	0
Sandarac .... ,,	72	0	95	0	80	0	102	6
Thus.............. ,,	13	0	14	0	13	0	14	0
Tragacanth, leaf.. ,,	240	0	400	0	220	0	380	0
in sorts ,,	115	0	210	0	150	0	200	0
OILS.								
Seal, pale..........per tun	£40	10	0	0	£35	10	0	0
yellow to tinged ,,	37	0	40	0	32	0	35	0
brown........ ,,	36	0	37	0	31	0	32	0
Sperm, body ...... ,,	91	0	0	0	98	0	0	0
headmatter ,,	0	0	0	0	0	0	0	0
Oils, *continued*:—	£	s.	£	s.	£	s.	£	s.
Cod.................. ,,	43	0	43	0	39	0	40	0
Whale, South Sea, pale ,,	40	0	0	0	38	0	40	0
yellow ,,	38	0	0	0	37	0	39	0
brown ,,	35	0	0	0	33	0	34	0
East India, Fish ,,	32	0	0	0	32	0	0	0
Olive, Galipoli ...... ,,	58	0	0	0	67	0	0	0
Trieste ...... ,,	57	0	0	0	67	0	0	0
Levant ...... ,,	52	0	0	0	62	0	0	0
Mogador...... ,,	51	0	0	0	61	0	0	0
Spanish ...... ,,	55	0	56	0	65	0	68	0
Sicily .... ,,	54	0	0	0	66	0	0	0
Cocoanut, Cochin.. per ton	43	0	0	0	52	0	53	0
Ceylon .. ,,	40	0	0	0	50	10	51	0
Sydney ,,	35	0	41	0	45	0	0	10
Ground Nut and Gingelly:								
Bombay	0	0	0	0	0	0	0	0
Madras................	40	0	0	0	38	0	41	0
Palm, fine	41	10	0	0	45	0	43	0
Linseed	29	0	29	10	0	0	0	0
Rapeseed, English, pale ..	40	10	0	0	33	10	0	0
brown........	39	0	38	5	31	10	0	0
Foreign pale....	43	0	44	0	34	0	35	0
brown........	38	10	0	0	31	0	32	0
Cottonseed	29	0	0	0	27	0	37	0
Lard....................	72	0	0	0	67	0	70	0
Tallow	35	0	0	0	37	0	0	0
Turpentine, American, cks.	29	0	29	3	25	6	26	0
Petroleum, Crude	14	0	0	0	12	0	12	10
	s.	d.	s.	d.	s.	d.	s.	d.
refined, per gall.	1	9	0	0	1	5½	1	6
Spirit ,,	0	3	0	9¾	0	9½	0	0
SEEDS.	s.	d.	s.	d.	s.	d.	s.	d.
Canary ....per qr.	62	0	72	0	70	0	80	0
Caraway, English per cwt.	60	0	75	0	0	0	0	0
German, &c.....	30	0	48	0	30	0	42	0
Coriander	20	0	22	0	0	0	0	0
Hemp ....per qr.	42	0	44	0	42	0	44	0
Linseed, English per qr...	0	0	0	0	65	0	72	0
Black Sea & Azof	57	6	0	0	57	0	0	0
Calcutta ,,	61	9	0	0	61	6	62	6
Bombay ,,	63	0	0	0	63	0	0	0
St. Petrsbrg. ,,	54	0	56	0	56	0	0	0
Mustard, brown..per bshl.	12	0	14	0	0	0	0	0
white.. ,,	10	0	12	0	12	0	13	0
Poppy, East India per qr.	55	0	56	0	58	6	0	0
SPICES.								
Cassia Lignea ....per cwt.	130	0	138	0	135	0	142	0
Vera .... ,,	45	0	85	0	60	0	84	0
Buds .... ,,	150	0	170	0	140	0	150	0
Cinnamon, Ceylon,								
1st quality ....per lb.	2	5	3	8	2	5	3	6
2nd do. ...... ,,	1	10	3	7	2	0	2	11
3rd do. ...... ,,	1	7	3	4	1	7	2	7
Tellicherry ...... ,,	1	2	2	6	0	0	0	0
Cloves, Penang.... ,,	0	10	0	11¼	0	10	0	11
Amboyna........ ,,	0	4½	0	5¼	0	5	0	6
Zanzibar .... ,,	0	3	0	0	0	3½	0	4½
Ginger, Jam., fine per cwt.	110	0	200	0	90	0	195	0
Ord. to good .. ,,	36	0	100	0	33	0	80	0
African.......... ,,	25	0	0	0	24	0	0	0
Bengal .... ,,	26	6	28	0	26	0	27	0
Malabar .... ,,	0	0	0	0	0	0	0	0
Cochin .... ,,	36	0	120	0	34	0	120	0
Pepper, Blk, Malabar, per lb.	0	5	0	5¾	0	4¼	0	5
White, Tellicherry ,,	0	9	1	5	0	10	1	6
Cayenne .... ,,	0	7	0	11	0	4	0	8½
Mace, 1st quality ..per lb.	3	5	4	3	2	8	3	4
2nd and inferior.. ,,	2	4	3	4	1	6	2	6
Nutmegs, 78 to 60 to lb.	2	9	4	4	2	1	4	3
90 to 80 ,,	2	3	2	8	1	6	2	0
132 to 95 ,,	1	8	2	2	1	2	1	6
VARIOUS PRODUCTS.								
COCHINEAL—								
Honduras, black ..per lb.	2	8	3	10	3	2	4	5
,, silver .. ,,	2	7	2	11	2	9	3	7
,, pasty .. ,,	2	0	2	6	1	4	2	7
Mexican, black .... ,,	2	9	3	0	3	1	3	3
,, silver .... ,,	2	7	2	8	2	10	0	0
Teneriffe, black....	2	9	4	0	3	0	5	0
,, silver.... ,,	2	6	2	9	2	11	3	4
PUMICE STONE ..per ton	120	0	160	0	120	0	160	0
SOAP, Castile ....per cwt.	35	0	0	0	38	0	39	0
SPONGE, Turk. fin pkd pr lb.	12	0	16	0	12	0	14	0
Fair to good .. ,,	4	0	11	0	5	0	11	0
Ordinary...... ,,	1	0	3	6	2	0	4	0
Bahama............ ,,	0	6	2	6	0	9	2	6
TERRA JAPONICA—								
Gambier .. per cwt.	17	0	17	6	16	9	17	3
Free cubes ,,	19	6	22	0	26	6	25	0
Cutch ..... ,,	24	0	25	0	33	0	36	0
WOOD, Dye, Bar ..per ton	£4	0	£4	10	£4	15	£5	0
Brazil .... ,,	0	0	0	0	0	0	0	0
Braziletto .... ,,	0	0	0	0	0	0	0	0
Cam .... ,,	26	0	30	0	30	0	36	0
Fustic, Cuba...... ,,	7	15	8	10	8	0	9	5
Jamaica .... ,,	4	10	5	10	6	10	7	5
Savanilla........ ,,	0	0	0	0	6	0	6	5
Logwood, Campeachy ,,	9	10	10	10	9	0	10	0
Honduras ...... ,,	5	15	0	0	4	15	5	0
St. Domingo .... ,,	5	10	6	10	4	10	4	15
Jamaica .... ,,	5	0	0	0	4	15	4	17/
Lima, first pile.... ,,	12	0	0	0	18	0	9	0
Red Sanders...... ,,	7	15	0	0	7	0		10
Sapan, Bimas, &c. ,,	7	0	9	10		0	13	0